

1 SUPERIOR COURT OF THE STATE OF CALIFORNIA  
2 FOR THE COUNTY OF LOS ANGELES  
3 DEPARTMENT 308 HON. CHARLES MC COY, JUDGE  
4 RICHARD BOEKEN, )  
5 PLAINTIFF, )  
6 )  
7 VS. ) CASE NO. BC226593  
8 )  
9 PHILIP MORRIS, )  
INCORPORATED, A )  
10 CORPORATION; INTERNATIONAL )  
HOUSE OF PANCAKES )  
INCORPORATED, A )  
CORPORATION. )  
11 )  
DEFENDANTS. )  
12 )  
13 REPORTER'S DAILY TRANSCRIPT OF PROCEEDINGS  
14 FRIDAY, APRIL 6TH, 2001  
15 APPEARANCES:  
16 (FOR PLAINTIFF) LAW OFFICES OF  
MICHAEL J. PIUZE  
17 11755 WILSHIRE BLVD.  
SUITE 1170  
18 LOS ANGELES, CA 90025  
19 (FOR DEFENDANTS) ARNOLD & PORTER  
BY: MAURICE A. LEITER  
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24 ROOM 308  
LOS ANGELES, CA 90005  
25  
VOLUME 12A OF  
26 PAGES 1864 THROUGH 1966  
27  
28

1864

1 LOS ANGELES, CALIFORNIA; FRIDAY, APRIL 6TH, 2001  
2 9:00 A.M.  
3 DEPARTMENT 308 HON. CHARLES MC COY, JUDGE  
4  
5  
6 (THE FOLLOWING PROCEEDINGS  
7 WERE HELD IN OPEN COURT OUT  
8 OF THE PRESENCE OF THE JURY:)  
9  
10 THE COURT: WE ARE ON THE RECORD.  
11 MR. LEITER: GOOD MORNING, YOUR HONOR.  
12 WE ARE GOING TO BEGIN BY FINISHING UP THE READING  
13 BY DR. UYDESS' TESTIMONY. THERE WAS JUST ONE  
14 QUESTION IN A POSSIBLE REDIRECT BY THE PLAINTIFF  
15 THAT WE HAVE A DISPUTE ABOUT, AND IF I MAY JUST  
16 APPROACH WITH THE TRANSCRIPT, PAGE 96, THE QUESTION

17 HIGHLIGHTED IN YELLOW WHICH WE BELIEVE SHOULD BE  
18 EXCLUDED CONSISTENT WITH YOUR HONOR'S EARLIER  
19 ORDER.  
20 MR. PIUZE: AND THE PORTION THAT HAS  
21 ACTUALLY BEEN READ TO THE JURY ALREADY AND NOT  
22 EXCLUDED, HE TALKED ABOUT THE REASON THAT HE  
23 DECIDED TO LEAVE WAS FLYING BACK ON THE CORPORATE  
24 PLANE FROM WHITE PLANES, NEW YORK WITH SCIENTISTS  
25 FROM CRAFT AND GENERAL FOODS OR SOME OTHER PLACE  
26 AND HE REALIZED ON THAT PLANE TRIP IT WAS THE WRONG  
27 PLACE BECAUSE THE PRIME MOTIVATION WAS JUST THAT,  
28 MARKET SHARE AND MONEY. I KNOW WHAT THE COURT

1865

1 RULED. THE COURT DID, THEY HADN'T ASKED THAT THE  
2 OTHER PART BE EXCLUDED. IT'S ALREADY BEEN READ TO  
3 THE JURY. IT'S SOMETHING ALREADY IN PLAY.  
4 THE COURT: ALL RIGHT, BUT ONCE IS  
5 ENOUGH. IF IT TURNS OUT -- OF COURSE, I HAVEN'T  
6 LISTENED TO THE REST OF THE CROSS-EXAMINATION. IF  
7 IT TURNS OUT THAT THERE'S A MAJOR ATTACK ON THE  
8 WITNESS BECAUSE OF BITTERNESS OVER FIRING OR  
9 SOMETHING LIKE THAT WHERE -- I MIGHT ALLOW IT.  
10 MR. PIUZE: I DON'T BELIEVE THAT'S THE  
11 CASE.  
12 MR. LEITER: I DON'T BELIEVE SO, EITHER.  
13 MR. PIUZE: CAN I SEE THAT FOR A SECOND,  
14 SEE IF THERE'S A WAY OF SALVAGING HIS ANSWER.  
15 THIS WOULD BE -- THIS WOULD BE MY  
16 PROPOSAL, THAT RATHER THAN USE THAT, IT WOULD JUST  
17 BE THIS (INDICATING), THE ANSWER BEING "NICOTINE."  
18 MR. LEITER: SAME ISSUE, YOUR HONOR, HE  
19 DOESN'T HAVE ANY EXPERTISE ON MARKET SHARE AND  
20 WHAT'S IMPORTANT TO MAINTAIN MARKET SHARE.  
21 THE COURT: NO.  
22 THAT'S NOT TO SAY THAT THAT CAN'T  
23 BE AN ISSUE IN THIS CASE BUT IT IS GOING DO HAVE TO  
24 TAKE MORE THAN THIS PARTICULAR PERSON TO PUT IT IN  
25 ISSUE.  
26 /// /// ///  
27 /// /// ///  
28 /// /// ///

1866

1 (THE FOLLOWING PROCEEDINGS  
2 WERE HELD IN OPEN COURT IN  
3 THE PRESENCE OF THE JURY.)  
4  
5 THE COURT: GOOD MORNING, LADIES AND  
6 GENTLEMEN. THE JURY IS WITH US. COUNSEL IS  
7 PRESENT AS WELL.  
8 MY COUNSEL TELL ME WE HAVE ALMOST  
9 EXACTLY 20 MINUTES LEFT WITH MR. UYDESS, REMEMBER,  
10 WE WERE LISTENING TO YESTERDAY.  
11 AFTER THAT'S OVER, WE ARE GOING TO  
12 TAKE ABOUT A FIVE-MINUTE BREAK TO SET UP FOR THE  
13 NEXT WITNESS WHO WILL BE A LIVE WITNESS.  
14 ALL RIGHT?  
15 GOOD.  
16 COUNSEL, PLEASE.  
17 MR. LEITER: THANK YOU, YOUR HONOR.  
18 GOOD MORNING, LADIES AND GENTLEMEN.  
19 WE ARE PICKING UP WITH THE

20 CROSS-EXAMINATION OF DR. UYDESS, TALKING ABOUT THE  
21 NOD PROJECT?  
22 MR. GOLDSTEIN: WE ARE ON PAGE 38.  
23 "Q SURE, SURE. AND IF  
24 IT WASN'T CONTROLLABLE, AND I WANT TO  
25 TALK A LITTLE BIT TO YOU ABOUT WHAT  
26 CONTROLLABLE MEANT. IF IT WASN'T  
27 CONTROLLABLE THEN YOU COULDN'T USE IT  
28 IN THE COMMERCIAL APPLICATION; RIGHT?

1867

1 "A RIGHT. AND THAT'S  
2 EXACTLY WHAT WE HAD TO PROVE IN THE  
3 LABORATORY, BEFORE ANYONE WOULD ALLOW  
4 US TO DO ANYTHING ELSE, WITH THE  
5 PROCESS.  
6 "Q AND IN FACT, YOU GOT  
7 TO THE POINT NOT ONLY WHERE YOU PROVED  
8 IT IN THE LABORATORY, WHERE YOU GOT IT  
9 GOING, BUT YOU BUILT A PILOT PLANT FOR  
10 IT; RIGHT?  
11 "A YES.  
12 "Q OKAY. AND A PILOT  
13 PLANT, JUST SO THE JURY KNOWS, A PILOT  
14 PLANT IS JUST LIKE A -- WHAT WOULD YOU  
15 CALL IT, A MINI --  
16 "A SMALL FACTORY.  
17 "Q A SMALL, LIKE A  
18 MINIATURE FACTORY.  
19 "A SMALL, NOT THE SIZE  
20 OF THE ROOM, BUT IT IS NOT THE SIDE OF  
21 THE WHOLE PRODUCTION CENTER.  
22 "Q RIGHT. IT COST A  
23 LOT OF -- A LOT OF TIME AND MONEY TO  
24 MAKE BUT IT IS NOT THE WHOLE  
25 PRODUCTION THING.  
26 "A RIGHT.  
27 "Q AND IN FACT, A LOT  
28 OF TIME AND MONEY WAS BEING SPENT ON

1868

1 THIS PROCESS; CORRECT?  
2 "A IT WAS VERY  
3 IMPORTANT TO THE COMPANY.  
4 "Q RIGHT, VERY  
5 IMPORTANT TO THE COMPANY.  
6 "NOW, SOME OF THE THINGS  
7 THAT HAVE TO BE CONTROLLED, WHEN YOU  
8 ARE USING THESE MICROBIAL AGENTS, ARE  
9 THE TEMPERATURE AT WHICH THE BACTERIA  
10 ARE HELD. WOULD THAT BE ONE?  
11 "A YES.  
12 "Q AND THE TIME, THE  
13 TIME COMPONENTS OF HOLDING IT, AND  
14 OCCASIONALLY IN THE LABORATORY, YOU  
15 WOULD RUN INTO PROBLEMS, WOULD YOU  
16 NOT, AND I AM NOT SUGGESTING THAT YOU  
17 DIDN'T GET PAST THEM, BUT YOU WOULD  
18 RUN INTO PROBLEMS THAT THE -- THE  
19 LITTLE --  
20 "A GUYS.  
21 "Q -- PAC MEN, THE  
22 LITTLE PAC MEN OR BUGS, THEY WOULD

23 START EATING THE NITRATES AND THEY  
24 WOULD STOP --  
25 "A AND IN THE  
26 DEVELOPMENT OF ANY NEW PROCESS, YOU  
27 ALWAYS ARE TRYING TO WORK OUT PROBLEMS  
28 THAT COME UP WHILE YOU ARE TRYING TO

1869

1 FINALIZE THAT PROCESS AND DEVELOP IT,  
2 YES.  
3 "Q WHEN THAT HAPPENS,  
4 SOMETIMES YOU WOULD WIND UP WITH A  
5 BUILD UP OF NITRITES; RIGHT?  
6 "A SOMETIMES, YES.  
7 "Q AND OF COURSE,  
8 THAT'S THE LAST THING YOU WANTED TO  
9 HAVE HAPPEN, WAS FOR NITRITES TO  
10 BUILD-UP?  
11 "A ABSOLUTELY.  
12 "Q OKAY.  
13 "Q SO YOU HAD A NUMBER  
14 OF YEARS OF EXPERIMENTATION AND YOU  
15 GOT TO THE POINT WHERE YOU WERE IN THE  
16 PILOT PLANT WITH IT, AND YOU WOULD GET  
17 SOME VERY LOW NITROGEN COMPOUNDS;  
18 RIGHT?  
19 "IN OTHER WORDS, YOU WOULD  
20 GET IT WORKING, YOU WOULD GET THAT  
21 THING WORKING IN THE PILOT PLANT, YOU  
22 KNOW, WHERE THE SYSTEM WAS, TO USE  
23 YOUR WORD, I THOUGHT IT WAS A GOOD  
24 WORD, CASCADING THE WAY YOU WANT IT  
25 TO.  
26 "A YES. THE PROCESS IN  
27 THE LABORATORY, BEFORE IT WENT TO THE  
28 PILOT PLANT, WHEN IT WAS SCALED UP IN

1870

1 THESE FERMENTER VESSELS, ABOUT THIS  
2 BIG, MANY OF THEM, RAN FOR MONTHS AND  
3 TYPICALLY THE TARGET WAS ZERO NITRATE,  
4 ZERO NITRITE. EVERYTHING GONE TO GAS.  
5 AND THERE WAS ZERO, AS FAR AS WE COULD  
6 MEASURE.  
7 "Q OKAY, BUT WHILE YOU  
8 WERE IN THE LABORATORY, YOU WOULD  
9 OCCASIONALLY HAVE PROBLEMS WITH THIS,  
10 WHAT I CALL THE START -- THE START-UP  
11 AND STOPPING AND YOU CAN'T HAVE THAT  
12 IN COMMERCIAL APPLICATION; RIGHT?  
13 "A UNTIL WE COULD LEARN  
14 TO CONTROL THAT BETTER IN THE  
15 BEGINNING, YES.  
16 "Q NOW, WERE THERE  
17 ALSO, AM I RIGHT, DOCTOR, THERE WERE  
18 ALSO PROBLEMS, THERE WAS AN ODOR  
19 PROBLEM WITH SOME BATCHES OF THE, OF  
20 WHAT I WILL CALL THE S.E.L.?  
21 "A UH-HUH  
22 "Q THE STRONGLY  
23 EXTRACTED LIQUOR THAT THE MICROBE  
24 WOULD BE IN, YOU WOULD HAVE SOME ODOR  
25 PROBLEMS WITH THAT, ISN'T THAT RIGHT?

26 "A YES, OCCASIONALLY.  
27 "Q AND THE COMPANY  
28 WORKED WITH ITS FLAVOR PERSON, THAT IS

1871

1 HOWARD SPEILBERG?  
2 "A THE CHIEF FLAVOR  
3 CHEMIST OF THE CORPORATION WORLDWIDE,  
4 HOWARD SPEILBERG.  
5 "Q ALL RIGHT. AND THE  
6 FACT THAT HOWARD SPEILBERG WAS BROUGHT  
7 IN TO TRY TO DEAL WITH THE ODOR  
8 PROBLEM ALSO SHOWED HOW IMPORTANT --  
9 "A HE WASN'T BROUGHT IN  
10 TO DEAL WITH THE ODOR PROBLEM. HE WAS  
11 A NATURAL PART OF THE TEAM THAT WAS  
12 OVER SEEING THE DEVELOPMENT OF THE  
13 PROCESS.  
14 "Q OKAY. BUT ODOR WAS  
15 A PROBLEM AND ONE WAY TO DEAL WITH  
16 ODOR IS TO USE FLAVORS; RIGHT?  
17 "A POSSIBLY, OR TO  
18 DEVELOP THE PROCESS BETTER SO YOU  
19 DON'T --  
20 "Q DON'T HAVE THE  
21 ODORS?  
22 "A -- DON'T HAVE THAT  
23 PROBLEM VERY FREQUENTLY, WHICH IS ONE  
24 OF THE THINGS WE DID DO.  
25 "Q NOW, THE ODOR, PART  
26 OF THE ODOR THAT WAS ASSOCIATED WITH  
27 THE USE OF THIS BACTERIA WAS THE SMELL  
28 OF, LIKE, RANCID BUTTER AND FECAL

1872

1 MATTER; RIGHT?  
2 "A WELL, MOST PEOPLE  
3 IDENTIFIED IT LIKE SMELLY SOCKS, GYM  
4 SOCKS.  
5 "Q I DON'T KNOW WHICH  
6 IS WORSE.  
7 "A I DON'T KNOW EITHER.  
8 "Q BUT IT WAS NOT A  
9 PLEASANT ODOR; RIGHT?  
10 "A IT COULD BE A FAIRLY  
11 STRONG, KIND OF OLD LOCKER ROOM  
12 ATHLETIC SOCK KIND OF SMELL THAT WAS  
13 IDENTIFIABLE IN CERTAIN KINDS OF  
14 ORGANIC ACIDS THAT CAN BE MADE.  
15 "Q AND THINGS LIKE  
16 ODOR, THEY ARE CONSIDERED PART OF WHAT  
17 WE WOULD CALL SUBJECTIVES; RIGHT?  
18 "A OH, YES. PRODUCT  
19 ACCEPTABILITY CAN BE DEPENDENT UPON  
20 SOMETHING LIKE THAT, WHICH, AGAIN, WE  
21 WERE VERY AWARE OF DURING THIS WHOLE  
22 PROJECT."  
23 MR. LEITER: SKIP TO PAGE 79.  
24 ARE YOU WITH ME?  
25 "Q NOW LET'S TO GO  
26 DR. GULLOTTA.  
27 "THE IDEA OF TESTING SMOKE  
28 FOR A BRAIN WAIVER RESPONSE, THE USE

1873

1 OF ELECTROPHYSIOLOGY FOR THIS PURPOSE,  
2 THAT WAS -- THAT WAS -- THE GENERAL  
3 CONCEPT WAS WELL-KNOWN BY THE  
4 SCIENTIFIC COMMUNITY BEFORE  
5 DR. GULLOTTA STARTED DOING HIS WORK,  
6 RIGHT?  
7 "A AS BRIGHT AS FRANK  
8 IS AND TALENTED, HE DIDN'T INVENT THIS  
9 WHOLE AREA, NO.  
10 "Q ALL RIGHT. AND I  
11 DIDN'T MEAN TO SUGGEST THAT HE DID.  
12 "BUT I AM SURE YOU WOULD  
13 EXPECT THAT DR. GULLOTTA WOULD USE THE  
14 PRIOR WORK IN THE LITERATURE ON  
15 TESTING SMOKE FOR BRAIN WAIVE  
16 RESPONSES AS A BASIS FOR GOING FORWARD  
17 WITH HIS WORK; RIGHT?  
18 "A YOU ALWAYS WANTED TO  
19 KNOW WHAT'S IN THE LITERATURE WHEN YOU  
20 START A PIECE OF WORK.  
21 "Q OKAY, GOOD. AND YOU  
22 ARE AWARE THAT THERE WAS PUBLISHED  
23 LITERATURE ON THIS WHOLE SUBJECT OF  
24 BRAIN WAIVE RESPONSE TO SMOKE BACK AT  
25 THE TIME DR. GULLOTTA DOING HIS WORK?  
26 "A GENERALLY, THERE WAS  
27 SOME. AGAIN, IT HASN'T -- IT WASN'T  
28 MY PARTICULAR FIELD, BUT, YES.

1874

1 "Q IN FACT, THERE WAS A  
2 WHOLE -- THERE WAS A WHOLE PUBLISHED  
3 INTERNATIONAL SYMPOSIUM ON THE E.E.G.  
4 EFFECTS OF NICOTINE BACK IN 1978,  
5 WASN'T THERE -- WEREN'T THERE?  
6 "A OH, I DON'T KNOW.  
7 "Q YOU WEREN'T AWARE OF  
8 THAT?  
9 "A THERE WAS -- IN  
10 1978? THAT'S NICE. THAT'S GOOD.  
11 "Q YOU WERE NOT AWARE  
12 OF THAT AT ALL?  
13 "A NO. FRANK MAY HAVE  
14 MENTIONED THAT TO ME AND IT MAY HAVE  
15 BEEN ON HIS DESK BUT, AGAIN, NO. THIS  
16 IS 20 YEARS AGO, YES.  
17 "Q WHEN DR. GULLOTTA  
18 WAS DOING HIS WORK, YOU WERE, DID YOU  
19 SAY YOU WERE NEXT DOOR TO HIM OR DID I  
20 GET THAT MIXED UP, IT WAS SOMEBODY  
21 ELSE?  
22 "A NO. I WAS, AT THAT  
23 TIME, JUST BEFORE.  
24 "Q WHERE WERE YOU IN  
25 RELATION TO HIM?  
26 "A I WAS ON THE THIRD  
27 FLOOR NEXT TO BEHAVIOR RESEARCH WHERE  
28 HE STARTED. BUT SOMETIME, AND I DON'T

1875

1 REMEMBER WHEN, WHEN CAROLINE LEVY, WHO

2 WAS AT ONE TIME IN THAT GROUP AND  
3 MOVED AND WENT TO NEW YORK, THERE WAS  
4 SOME REORGANIZATION OF SPACE AND THERE  
5 WERE PEOPLE IN R&D MOVING AROUND LIKE  
6 YOU DO, YOU MOVE AROUND OFFICES, WOUND  
7 UP ON THE FOURTH FLOOR BECAUSE THEY  
8 WANTED HIM TO HAVE A TOTALLY SEPARATE  
9 LABORATORY FOR HIS WORK SO THEY BUILT  
10 THAT LABORATORY ON THE FOURTH FLOOR  
11 RATHER THAN IN WITH THE REST OF THE  
12 STUFF ON THE THIRD FLOOR, WHICH IS  
13 WHERE DR. DENOBLE WAS AND BILL DUNN  
14 AND OTHERS.

15 "Q AND I THINK YOU SAID  
16 THIS MORNING THAT DR. GULLOTTA, IN  
17 DOING HIS TESTS, WAS TESTING FOR  
18 NICOTINE RESPONSE IN THE BRAIN AND HE  
19 WAS ALSO TESTING FOR FLAVOR RESPONSE  
20 IN THE BRAIN; RIGHT?

21 "A YES.

22 "Q OKAY. SO, FOR  
23 EXAMPLE, HE WOULD TAKE A VANILLIN  
24 COMPOUND, WHICH WAS A FLAVORANT AND  
25 WOULD TEST TO SEE WHETHER PEOPLE HAD A  
26 BRAIN WAVE RESPONSE TO VANILLA IN HIS  
27 WORK; RIGHT?

28 "A YES, THEY WANTED AN

1876

1 OBJECTIVE, TECHNICAL MEASUREMENT,  
2 SCIENTIFIC MEASUREMENT THAT THEY COULD  
3 CORRELATE TO SOMETHING SAYING, YES, I  
4 LIKE IT MORE THAN THE THING I HAD  
5 BEFORE. AND IF THEY PUT A LITTLE MORE  
6 VANILLIN, I THINK IT'S CALLED --

7 "Q VANILLIN IS HOW YOU  
8 PRONOUNCE IT?

9 "A VANILLIN IS THE  
10 CHEMICAL. IT'S VANILLA.

11 "Q IT'S VANILLA?

12 "A THEY WOULD DO IT  
13 THAT WAY SO THEY WOULD HAVE A  
14 MEASUREMENT, NOT JUST WHAT SOMEONE  
15 SAID: HOW MUCH DO YOU LIKE IT? A  
16 LITTLE BIT MORE.

17 "THEY HAD A MEASUREMENT THEY  
18 COULD GO BACK TO.

19 "Q THEY WERE TRYING TO  
20 OBJECTIFY IT?

21 "A YES.

22 "Q THERE HAD BEEN  
23 PUBLISHED LITERATURE ON, FOR EXAMPLE,  
24 BRAIN WAVE RESPONSE TO WHAT YOU GET IN  
25 A CUP OF COFFEE FROM CAFFEINE; RIGHT?

26 "A OH, A LOT OF THINGS.

27 "Q OKAY.

28 "A SURE.

1877

1 "Q AND HE WAS LOOKING  
2 AT THINGS LIKE CITRUS SMELL AND  
3 VANILLA AND NICOTINE AND OTHER THINGS?

4 "A MENTHOL.

5 "Q RIGHT, HE WAS DOING  
6 IT ALL, RIGHT, OKAY.  
7 "NOW, AND HE WAS ACTUALLY  
8 ABLE, AS I UNDERSTAND YOUR TESTIMONY,  
9 TO MEASURE BRAIN WAVE RESPONSES FOR  
10 DIFFERENT FLAVORS AND SPELLS; RIGHT?  
11 "A HE WAS ABLE TO  
12 MEASURE A RESPONSE HAVING TO DO WITH A  
13 NERVE IN THE TONGUE OR THE MOUTH OR  
14 THE THROAT BEING STIMULATED BY  
15 SOMETHING LIKE THAT, AMONG OTHER  
16 THINGS THAT HE WAS LOOKING AT, LIKE  
17 NICOTINE, YES.  
18 "Q AND THE  
19 INTERPRETATION OF A FLAVOR OCCURS IN  
20 THE BRAIN, SO YOU WOULD EXPECT TO GET  
21 AN E.E.G. RESPONSE; CORRECT?  
22 "A EVERYTHING WE DO IS  
23 INTERPRETED IN THE BRAIN.  
24 "Q OKAY. AND YOU  
25 BELIEVED, YOU BELIEVED THAT IT WAS  
26 APPROPRIATE OR NOT INAPPROPRIATE FOR  
27 DR. GULLOTTA TO BE DOING HIS WORK,  
28 DIDN'T YOU?

1878

1 "A OH, YES, IT WAS,  
2 AGAIN, EXCELLENT WORK. FRANK TOOK  
3 WHAT WAS KNOWN IN THE LITERATURE AND  
4 THIS IS, AGAIN, SOMETHING THAT PHILIP  
5 MORRIS DID FREQUENTLY, AND ONE OF THE  
6 THINGS I ADMIRERD ABOUT THE COMPANY,  
7 ONE OF THE THINGS THAT DISAPPOINTED ME  
8 ULTIMATELY, WHY I LEFT, HAD THE  
9 CAPABILITY TO TAKE WHAT WAS OUT THERE,  
10 A TECHNOLOGY THAT WAS AT THE FOREFRONT  
11 OF ITS FIELD AT THE DAY, BRING IT  
12 IN-HOUSE, AND MAKE A MASSIVE STEP-UP  
13 IN A YEAR, BECAUSE THEY HAD THE  
14 HORSEPOWER TO DO IT, THE TALENTED  
15 STAFF, THE MONEY, THE FACILITIES.  
16 "AND OVER A SHORT PERIOD OF  
17 TIME, THEY WOULD TAKE WHAT THE REST OF  
18 THE WORLD DID AND WITHOUT THE REST OF  
19 THE WORLD KNOWING ABOUT IT, WOULD ALL  
20 OF A SUDDEN GO, SWOOP, LIKE THIS AND  
21 DO WORK THAT NO ONE ELSE IN THE WORLD,  
22 THAT I KNEW, COULD DO.  
23 "Q AND IN FACT, THEY  
24 HAD, I THINK YOU SAID, I BELIEVE IT  
25 WAS YOU WHO SAID THEY HAD 600 PEOPLE  
26 DOING RESEARCH AND DEVELOPMENT WORK OF  
27 VARIOUS KINDS?  
28 "A WHEN I FIRST GOT

1879

1 THERE AROUND 600, 650. IT VARIED A  
2 LITTLE BIT.  
3 "YES, THEY HAD, NOT JUST IN  
4 R&D, THEY HAD, I DON'T KNOW WHAT THE  
5 NUMBER OF PEOPLE IN RICHMOND WAS, THEY  
6 HAD A LOT OF TALENTED PEOPLE AT PHILIP  
7 MORRIS.



8 "Q AND THOSE TALENTED  
9 PEOPLE WORKED ON LOTS OF DIFFERENT  
10 PROJECTS, LIKE SOME OF THE ONES YOU  
11 MENTIONED THIS MORNING, EXPANDED  
12 TOBACCO?  
13 "A YES.  
14 "Q RIGHT? AND  
15 FILTRATION?  
16 "A YES.  
17 "Q VENTILATION OF  
18 FILTERS. AND NODS.  
19 "A YES.  
20 "Q ALL KINDS OF  
21 PROJECTS THAT WERE PART OF THE  
22 RESEARCH AND DEVELOPMENT EFFORTS AT  
23 PHILIP MORRIS.  
24 "A YES.  
25 "Q AND ONE OF THE  
26 THINGS THAT YOU MENTIONED, BY THE WAY,  
27 WAS RECONSTITUTED LEAF TOBACCO. YOU  
28 TALKED ABOUT THAT FOR JUST, JUST A

1880

1 SMATTERING THIS MORNING. AND I JUST  
2 WANT TO CLEAR UP ONE THING ABOUT THAT.  
3 "YOU ARE NOT AWARE, ARE YOU,  
4 DOCTOR, OF ANY NICOTINE BEING USED IN  
5 THE RECONSTITUTED TOBACCO  
6 MANUFACTURING PROCESS, OTHER THAN THE  
7 NICOTINE THAT COMES FROM THE TOBACCO  
8 ITSELF THAT WAS USED IN THE PROCESS?  
9 "A THAT IS CORRECT.  
10 THE ONLY NICOTINE THAT WAS RESIDENT,  
11 AS FAR AS I KNOW, OR WOULD EXPECT AT  
12 PHILIP MORRIS -- I MEAN, I REMEMBER  
13 THAT REPORT BACK A NUMBER OF YEARS AGO  
14 WHERE THE SPIKING OF NICOTINE OUT OF A  
15 BOTTLE, I MEAN, PHILIP MORRIS WOULD  
16 NEVER DO THAT, AS FAR AS I KNOW.  
17 "YES, WHATEVER WAS IN THE  
18 LEAVES THAT GETS SWITCHED OUT IN THIS  
19 LIQUID EXTRACT AND CONCENTRATED --  
20 "Q YES.  
21 "A -- WAS WHAT WAS PUT  
22 BACK, THE AMOUNT, DEPENDING ON HOW  
23 THEY RECOMBINED ALL THIS STUFF.  
24 "SO THEY HAD CONTROL OVER  
25 HOW MUCH THEY PUT BACK INTO THE  
26 SHEETS. SO WITHIN THAT CONTEXT, YES.  
27 "Q SO WITHIN THAT  
28 CONTEXT, WHAT YOU ARE SAYING IS THEY

1881

1 DIDN'T ADD EXTRANEIOUS NICOTINE?  
2 "A NO. IT WAS THE  
3 NICOTINE THAT WAS ORIGINALLY RESIDENT,  
4 WHATEVER LEAF PRODUCTS THEY WERE  
5 EXTRACTING.  
6 "Q AS FAR AS YOU KNOW,  
7 THESE ALLEGATIONS OF SPIKING ARE NOT  
8 TRUE?  
9 "A YES, ABSOLUTELY.  
10 AND IT WAS NOTHING I WOULD HAVE EVER

11 EXPECTED A COMPANY LIKE PHILIP MORRIS  
12 TO EVER THINK OF, LET ALONE DO.  
13 "Q OKAY. AND YOU ARE  
14 NOT AWARE OF PHILIP MORRIS EVER USING  
15 RECONSTITUTED LEAF TO ADJUST NICOTINE  
16 UPWARDS IN ANY COMMERCIAL PRODUCT THAT  
17 IS ACTUALLY USED?  
18 "A WELL, I AM NOT SURE  
19 WHAT YOU MEAN BY 'UPWARDS.' IT WAS MY  
20 UNDERSTANDING THAT SHEET COULD BE USED  
21 AND WAS, ON OCCASION, USED TO OBTAIN A  
22 CERTAIN TARGETED LEVEL OF NICOTINE IN  
23 THE FINAL PRODUCT. AND THAT WAS PART  
24 OF THE EFFICACY OF THAT PROCESS. THAT  
25 WAS PART OF THE USE OF THE PROCESS.  
26 "IT'S NOT JUST A FILLER,  
27 JUST A SPACE FILLER BUT A WAY TO  
28 INTRODUCE WHAT YOU WANTED TO INTRODUCE

1882

1 TO THE PRODUCT.  
2 "Q OKAY. BUT MY  
3 QUESTION TO YOU, DOCTOR, IS WHETHER  
4 YOU ARE AWARE OF WHETHER PHILIP MORRIS  
5 EVER ACTUALLY, IN A COMMERCIAL  
6 PRODUCT, WITH A SPECIFIC COMMERCIAL  
7 PRODUCT, WHETHER IT EVER ADJUSTED  
8 NICOTINE IN SOME WAY BY ADDING  
9 NICOTINE TO MAKE IT HIGHER?  
10 "YOU'RE NOT AWARE OF THAT,  
11 ARE YOU?  
12 "A AGAIN, I AM NOT SURE  
13 HOW YOU ARE USING THE WORD 'HIGHER,' I  
14 MEAN, IF YOU LOOK AT THE AMOUNT OF  
15 NICOTINE THAT WAS RESIDENT ON THE  
16 SHEET AT ANY ONE POINT IN TIME, IT  
17 COULD BE VARIED BY THE WAY YOU HANDLE  
18 THE PROCESS.  
19 "I MEAN, THERE WERE TIMES  
20 WHERE IT COULD BE AT THE LOWER LEVEL  
21 AND THERE WERE TIMES WHERE IT COULD BE  
22 AT A HIGHER LEVEL.  
23 "WHETHER THE COMPANY USED  
24 THAT PROCESS TO INTENTIONALLY ALWAYS  
25 MAKE SURE THAT SHEET -- THAT THE SHEET  
26 HAD A MASSIVELY HIGH NICOTINE LEVEL TO  
27 PUT INTO THE PRODUCT, I DON'T KNOW IF  
28 THAT EVER OCCURRED.

1883

1 "Q OKAY. WELL, LET ME  
2 SEE IF -- BECAUSE I AM CONCERNED THAT  
3 WHERE WE MAY BE CONFUSED A LITTLE BIT  
4 HERE, I JUST WANT TO SHOW YOU A PAGE  
5 FROM YOUR DEPOSITION AND MAKE SURE WE  
6 ARE TALKING ABOUT THE SAME THING.  
7 OKAY?  
8 "A OKAY.  
9 "Q SO WE WILL TAKE A  
10 MINUTE, DOCTOR. I AM GOING TO HAND IT  
11 TO YOU.  
12 "A THAT'S FINE. THIS  
13 IS THE DEPOSITION OF --

14 "Q YES. YES. IN THIS  
15 CASE.  
16 "A OKAY.  
17 "Q OKAY?  
18 "A YESTERDAY?  
19 "Q RIGHT. THIS IS A  
20 VERY TIMELY DEPOSITION. THIS IS A  
21 DEPOSITION THAT TOOK PLACE YESTERDAY.  
22 "AND THE QUESTION MAINLY --  
23 IT WAS CONFUSING. BUT THE QUESTION  
24 THAT WAS ASKED WAS, THIS IS ON PAGE  
25 44, DOCTOR.  
26 "A OKAY.  
27 "Q I AM ASKING WHETHER  
28 YOU ARE AWARE OF WHETHER PHILIP MORRIS

1884

1 EVER USED R. L. --  
2 "A EXCUSE ME. WHERE ON  
3 THE PAGE? WHERE DO I LOOK?  
4 "Q I THINK IT IS AT THE  
5 BOTTOM, BUT LET ME TAKE A LOOK.  
6 "A OKAY, DOWN HERE,  
7 LINE 23?  
8 "Q RIGHT. AND THE  
9 QUESTION IS, I AM ASKING WHETHER YOU  
10 ARE AWARE OF WHETHER PHILIP MORRIS  
11 EVER USED R. L., THAT'S RECONSTITUTED  
12 LEAF; RIGHT, TO ADJUST NICOTINE  
13 UPWARD, NOT WHETHER IT COULD BE DONE,  
14 WHETHER IT WAS DONE?  
15 "AND YOU ANSWERED: NOT WITH  
16 REGARDS TO A SPECIFIC PRODUCT IN WHICH  
17 THAT WAS DONE.  
18 "NOW, IS THAT ESSENTIALLY --  
19 YOU ARE NOT AWARE OF ANY SPECIFIC  
20 PRODUCT IN WHICH --  
21 "A RIGHT, WHICH IS KIND  
22 OF WHAT I SAID.  
23 "Q RIGHT.  
24 "A I AM NOT AWARE OF  
25 WHETHER PHILIP MORRIS EVER LOADED UP  
26 THE SHEET WITH A TREMENDOUS AMOUNT OF  
27 NICOTINE AND INTRODUCED IT INTO A  
28 MARKETING PRODUCT, MARKETABLE PRODUCT.

1885

1 "I MEAN, THEY WOULDN'T HAVE  
2 DONE THAT FOR A LOT OF REASONS, BUT,  
3 NO.  
4 "Q OKAY. YOU MENTIONED  
5 THE WORD 'RATOONING' IN CONNECTION  
6 WITH RATOONING, R-A-T -- JUST HOLD IT  
7 UP THERE. JUST PUT IT UP ON THE  
8 JUDGE'S DESK.  
9 "AND I THINK YOU EXPLAINED  
10 THAT RATOONING IS WHERE YOU CUT OFF  
11 THE LEAF BEFORE IT IS FULLY GROWN, YOU  
12 CUT OFF THE PLANT?  
13 "A YOU CUT THE PLANT  
14 OFF FAIRLY CLOSE TO THE GROUND, MAYBE  
15 JUST ABOVE THE BOTTOM FEW LEAVES.  
16 "Q OKAY. AND I JUST

17 HAD A QUESTION FOR YOU ON RATOONING.  
18 "NOW, AM I RIGHT, DOCTOR,  
19 JUST SO WE CAN GET BY THIS AREA, YOU  
20 DON'T KNOW WHETHER ANY LEAVES PRODUCED  
21 THROUGH RATOONING EVER GOT INTO  
22 PRODUCTION IN ANY COMMERCIAL CIGARETTE  
23 AT PHILIP MORRIS?  
24 "A NO, I DON'T. I WAS  
25 ONLY AWARE OF IT DURING THE RESEARCH  
26 PHASE OF THOSE PROJECTS.  
27 "Q AND THE RESEARCH  
28 PHASES, THEY WERE SIMPLY LOOKING AT

1886

1 VARIOUS ASPECTS OF WHAT HAPPENS WHEN  
2 YOU RATOON TOBACCO; RIGHT?  
3 "A THEY WERE DOING  
4 FIELD EXPERIMENTS TO LOOK AT A NUMBER  
5 OF CRITERIA, ONE OF WHICH WAS NICOTINE  
6 PRODUCTION IN THE NEW LEAVES THAT GREW  
7 UP AFTER.  
8 "Q SURE. BECAUSE WHEN  
9 YOU CUT THEM OFF LIKE THAT, A LOT OF  
10 THINGS CHANGE. SUGAR CAN CHANGE;  
11 RIGHT?  
12 "A OH, A NUMBER OF  
13 THINGS CAN CHANGE.  
14 "Q RIGHT, SO --  
15 "A THEY WERE LOOKING AT  
16 A LOT OF THINGS.  
17 "Q THEY WERE LOOKING AT  
18 EVERYTHING THAT CHANGES WHEN YOU DO  
19 THAT?  
20 "A I AM NOT SURE IT WAS  
21 EVERYTHING, BUT THEY HAD CERTAIN  
22 TARGETED COMPONENTS, SUGARS, CERTAIN  
23 WAX, FLAVORANTS AND NICOTINE WAS HIGH  
24 ON THE LIST.  
25 "Q AND THAT WAS IN AN  
26 EXPERIMENTAL PHASE, AND AS FAR AS YOU  
27 KNOW, NEVER USED IN COMMERCIAL  
28 PROCESS?

1887

1 "A AS FAR AS I KNOW, IT  
2 WAS JUST BEING EXPLORED FOR  
3 POSSIBILITIES."  
4 MR. LEITER: YOUR HONOR, I BELIEVE THAT  
5 COMPLETES THE READING OF THE CROSS-EXAMINATION.  
6 THE COURT: VERY WELL.  
7 MR. GOLDSTEIN: PAGE?  
8 MR. PIUZE: 95.  
9 "Q YOU WERE ASKED ABOUT  
10 SOME DOCUMENTS, ONE DOCUMENT, THE  
11 FIRST ONE THAT MR. HEIM DISCUSSED WITH  
12 YOU WAS THIS DOCUMENT DATED JULY 23,  
13 '80, FROM DENOBLE, DUNN, OSDENE AND  
14 RYAN TO DR. SELIGMAN.  
15 THE BOTTOM-LINE CONCLUSION  
16 OF THIS DOCUMENT IS THAT NICOTINE IS A  
17 REINFORCER BUT IT IS NOT ADDICTIVE;  
18 RIGHT?  
19 "A THAT'S WHAT'S STATED

20 HERE.  
21 "Q IS THIS DOCUMENT  
22 CONSISTENT WITH ATTITUDE AND  
23 DISCUSSIONS OF SCIENTISTS ON THE  
24 SUBJECT OF ADDICTION DURING YOUR 11  
25 YEARS WITH PHILIP MORRIS OR IS IT  
26 INCONSISTENT WITH WHAT YOU HEARD?  
27 "A I AM SORRY, WOULD  
28 YOU REPEAT THAT ONE TIME.

1888

1 "Q YES.  
2 "I AM ASKING YOU IF THIS  
3 DOCUMENT, WHICH SAYS NICOTINE IS NOT  
4 ADDICTIVE, IS MERELY A REINFORCER, IS  
5 CONSISTENT WITH WHAT SCIENTISTS WERE  
6 SAYING IN YOUR PRESENCE, IN YOUR  
7 DISCUSSIONS WITH THEM, IN MEETINGS YOU  
8 ATTENDED DURING YOUR 11 YEARS AT  
9 PHILIP MORRIS?  
10 "A NO. NOT TOTALLY,  
11 NO."  
12 MR. PIUZE: MAY I PLEASE GO TO 97 AND  
13 START AT 3.  
14 "Q DID THE NOD PROJECT,  
15 FAIL?  
16 "A NO. AS FAR AS I  
17 KNOW, IT WAS TECHNICALLY SUCCESSFUL,  
18 MAY HAVE NEEDED A FEW THINGS. THEY  
19 COULD HAVE IMPROVED IT EVEN FURTHER.  
20 BUT AS FAR AS WHAT I WAS TOLD BY MY  
21 MANAGEMENT, OUTSIDE CONTRACTORS WHO  
22 WERE EXPERTS, OTHER PEOPLE AT PHILIP  
23 MORRIS, CHIEF ENGINEERS, IT WAS  
24 SUCCESSFUL.  
25 "Q I BELIEVE YOU  
26 MENTIONED SOMETHING ABOUT THE R&D  
27 HEADQUARTERS IN SWITZERLAND.  
28 "NOW, WAS INBIFO IN GERMANY

1889

1 ALSO CONSIDERED TO BE R&D HEADQUARTERS  
2 OR WAS THAT SOMETHING ELSE?  
3 "A THAT WAS TOTALLY  
4 DIFFERENT.  
5 "Q NOW, THE LETTER THAT  
6 MR. HEIM REFERRED TO FROM DR. HELMUT  
7 GAISCH DATED SEPTEMBER 12, '83,  
8 DR. GAISCH WAS STILL WITH THE R&D  
9 SECTION IN NEUCHATEL, SWITZERLAND; IS  
10 THAT CORRECT?  
11 "A YES.  
12 "Q WAS THERE, WAS THERE  
13 A VALID, BASED ON EVERYTHING THAT YOU  
14 LEARNED DURING YOUR TENURE AT PHILIP  
15 MORRIS, WAS THERE A VALID SCIENTIFIC  
16 REASON FOR KILLING THE NOD PROJECT?  
17 "A NOT THAT I WAS AWARE  
18 OF  
19 "Q WAS THERE A VALID,  
20 SCIENTIFIC REASON FOR KILLING  
21 DR. GULLOTTA'S RESEARCH OR SENDING IT  
22 TO EUROPE?

23 "A SCIENTIFIC REASON?  
24 "Q YES.  
25 "A NOT THAT I WAS AWARE  
26 OF.  
27 "Q AND WAS THERE A  
28 VALID SCIENTIFIC REASON FOR KILLING

1890

1 DR. DENOBLE'S RESEARCH?  
2 "A NO, NOT THAT I WAS  
3 AWARE OF.  
4 "Q NOW, TOWARD THE END  
5 OF MR. HEIM'S QUESTIONS, YOU WERE  
6 HAVING A DISCUSSION ABOUT THE GENERAL  
7 LEVEL OF SCIENCE AT PHILIP MORRIS IN  
8 TERMS OF THE QUALIFICATIONS OF THE  
9 SCIENTISTS WHICH YOU SAID WAS VERY  
10 HIGH. AND THEY MADE ADVANCES AND THEN  
11 YOU SAID, QUOTE, WHERE THEY MADE THESE  
12 ADVANCES, QUOTE, WITHOUT THE REST OF  
13 THE WORLD KNOWING ABOUT IT, END QUOTE.  
14 WHAT DID YOU MEAN BY THAT?  
15 "A WHEN PHILIP MORRIS  
16 DECIDED TO UTILIZE THE CURRENT  
17 TECHNOLOGY AND EXPLORE IT FOR POSSIBLE  
18 USE INSIDE, IT WANTED TO ELEVATE,  
19 RAISE THE LEVEL OF SCIENCE AND QUALITY  
20 ASSOCIATED WITH THAT SO IT COULD HAVE  
21 A CORPORATE ADVANTAGE. AND SOMETIMES  
22 WE'D USE THAT WORK TO DEVELOP NEW AND  
23 NOVEL INFORMATION WHICH IT DIDN'T  
24 PARTICULARLY WANT ANYONE ELSE TO KNOW  
25 ABOUT. SO IT KEPT IT --  
26 "Q KEPT IT SECRET?  
27 "A KEPT IT SECRET,  
28 YES."

1891

1 MR. PIUZE: AND EVERYONE WILL BE HAPPY TO  
2 KNOW, THAT'S THE END OF THAT READING, YOUR HONOR.  
3 THE COURT: LADIES AND GENTLEMEN, WE ARE  
4 GOING TO TAKE FIVE MINUTES. JUST GO OUT AND TAKE A  
5 HALLWAY BREAK. AND SET UP IN HERE FOR THE NEXT  
6 WITNESS AND WE WILL GET STARTED AGAIN.  
7 THANK YOU VERY MUCH.  
8  
9 (THE FOLLOWING PROCEEDINGS  
10 WERE HELD IN OPEN COURT OUT  
11 OF THE PRESENCE OF THE JURY:)  
12  
13 MR. LEITER: YOUR HONOR, ONE VERY QUICK  
14 PROBLEM, ONE OF THE DOCUMENTS THAT MR. PIUZE WANTS  
15 TO USE WITH THE NEXT WITNESS, WE HAVE NO OBJECTION  
16 TO ALL THE DOCUMENT EXCEPT WE WERE JUST TOLD FOR  
17 THE FIRST TIME THAT THERE IS A LAST PAGE WHICH THEY  
18 BELIEVE IS PART OF THE DOCUMENT.  
19 WE HAVE NO IDEA WHETHER IT'S PART  
20 OF THE DOCUMENT OR NOT.  
21 WE DON'T WANT THEM TO OFFER THE  
22 DOCUMENT WITH THE LAST PAGE, UNTIL WE HAVE AN  
23 OPPORTUNITY TO CONFIRM THAT IT'S PART OF THE  
24 DOCUMENT.  
25 THE COURT: ALL RIGHT. HOLD OFF ON THAT

26 AND I WILL GIVE YOU A FAIR OPPORTUNITY TO DO THAT.  
27 IS HE GOING TO BE WITH US OVER THE  
28 AFTERNOON?

1892

1 MR. PIUZE: PROBABLY NOT, BUT THAT PAGE  
2 IS NEVER GOING TO BE SHOWN, MENTIONED OR IN ANY WAY  
3 MENTIONED.  
4 MR. LEITER: BUT HE WANTS TO PUT IT INTO  
5 EVIDENCE.  
6 MR. PIUZE: THAT'S NOT TRUE.  
7 THE COURT: DON'T MOVE IT INTO EVIDENCE  
8 AT THIS POINT IN TIME.  
9 MR. PIUZE: EXACTLY.  
10 THE COURT: I WILL TAKE CARE OF IT LATER.  
11 BRING THE JURY IN, PLEASE.  
12  
13 (THE FOLLOWING PROCEEDINGS  
14 WERE HELD IN OPEN COURT IN  
15 THE PRESENCE OF THE JURY.)  
16  
17 THE COURT: THANK YOU.  
18 OUR JURY PANEL IS WITH US. COUNSEL  
19 ARE PRESENT AS WELL.  
20 NEXT WITNESS, PLEASE.  
21 MR. PIUZE: DR. NEAL BENOWITZ IS THE NEXT  
22 WITNESS FOR THE PLAINTIFF.  
23  
24  
25 NEAL BENOWITZ M.D.,  
26 CALLED AS A WITNESS BY THE PLAINTIFF, WAS SWORN  
27 AND TESTIFIED AS FOLLOWS:  
28 THE CLERK: YOU DO SOLEMNLY STATE THE

1893

1 TESTIMONY YOU MAY GIVE IN THE CAUSE NOW PENDING  
2 BEFORE THIS COURT, SHALL BE THE TRUTH, THE WHOLE  
3 TRUTH AND NOTHING BUT THE TRUTH, SO HELP YOU GOD.  
4 THE WITNESS: YES, I DO.  
5 THE CLERK: THANK YOU.  
6 THE COURT: PLEASE STATE YOUR NAME FOR  
7 THE RECORD.  
8 THE WITNESS: NEAL BENOWITZ.  
9 THE CLERK: SPELL YOUR LAST NAME, SIR.  
10 THE WITNESS: B-E-N-O-W-I-T-Z.  
11  
12 DIRECT EXAMINATION  
13  
14 BY MR. PIUZE:  
15 Q. SO YOUR NAME IS BENOWITZ?  
16 GOOD MORNING.  
17 A. GOOD MORNING.  
18 Q. YOU ARE A MEDICAL DOCTOR?  
19 A. YES.  
20 Q. ARE YOU EMPLOYED?  
21 A. YES.  
22 Q. WHO IS YOUR BOSS?  
23 A. I AM AN EMPLOYEE OF THE U.C.  
24 SAN FRANCISCO, UNIVERSITY OF CALIFORNIA,  
25 SAN FRANCISCO. I WORK AT THE SAN FRANCISCO GENERAL  
26 HOSPITAL, WHICH IS A TEACHING HOSPITAL OF U.C.  
27 SAN FRANCISCO.  
28 Q. ARE YOU EMPLOYED BY THE REGENTS OF

1894

1 THE UNIVERSITY OF CALIFORNIA?  
2 A. YES.  
3 Q. ARE YOU A MEDICAL PROFESSOR?  
4 A. YES.  
5 Q. HOW LONG HAVE YOU BEEN A MEDICAL  
6 PROFESSOR?  
7 A. I HAVE BEEN ON THE U.C. FACULTY  
8 SINCE 1974. I STARTED AS AN ASSISTANT PROFESSOR.  
9 I HAVE BEEN A FULL PROFESSOR PROBABLY FOR THE LAST  
10 15 YEARS IN MEDICINE, PSYCHIATRY AND  
11 BIOPHARMACEUTICAL SCIENCES.  
12 Q. SO YOU ARE A FULL PROFESSOR IN  
13 THREE DIFFERENT AREAS?  
14 A. YES.  
15 Q. DO YOU KNOW SOMETHING ABOUT  
16 NICOTINE?  
17 A. YES. MOST OF MY RESEARCH OVER THE  
18 PAST 25 YEARS HAS RELATED TO STUDYING THE EFFECTS  
19 OF NICOTINE ON PEOPLE, STUDYING NICOTINE ADDICTION,  
20 STUDYING HOW NICOTINE INFLUENCES SMOKING BEHAVIOR,  
21 STUDYING THE EFFECTS OF NICOTINE AND SMOKING ON THE  
22 HEART AND OTHER ILLNESSES RELATED TO SMOKING.  
23 Q. WE READ SOME TESTIMONY HERE FROM A  
24 WITNESS THE JURY NEVER SAW. AND ONE OF THE TERMS  
25 THAT WAS USED IN THE TESTIMONY WAS C. V. DO YOU  
26 KNOW WHAT A C. V. IS?  
27 A. YES.  
28 Q. WHAT'S A C. V.?

1895

1 A. IT'S A CURRICULUM VITAE WHICH IS A  
2 SUMMARY OF ONE'S EDUCATION AND TRAINING, ONE'S  
3 ACTIVITIES, LECTURES, CONFERENCES, AWARDS,  
4 CONSULTATIONS, PUBLICATIONS, BOOK CHAPTERS, ET  
5 CETERA.  
6 Q. SO FOR SOME OF US NOT IN THE  
7 ACADEMIC WORLD OR -- FOR SOME OF US, SAYING  
8 "RESUME" MIGHT BE A SHORTHAND FOR SAYING "C. V."  
9 A. IT'S THE SAME.  
10 Q. THE SAME.  
11 NOW, WE HAVE ALSO HEARD, I THINK  
12 MAYBE FROM A COUPLE LIVE WITNESSES THAT HAVE BEEN  
13 HERE, AT LEAST ONE, AND WE HAVE HEARD FROM SOME OF  
14 THIS TESTIMONY THAT'S BEEN READ, THE TERM "PEER  
15 REVIEW."  
16 DO YOU KNOW WHAT THAT MEANS,  
17 OBVIOUSLY?  
18 A. YES.  
19 Q. PLEASE EXPLAIN TO THE JURY.  
20 A. WELL, WHEN ONE PUBLISHES RESEARCH,  
21 ONE WRITES AN ARTICLE TALKING ABOUT WHY ONE DID THE  
22 RESEARCH, THE METHODS AND WHAT THEY FOUND OR WHAT  
23 IT MEANS. AND WHEN YOU SUBMIT THAT TO A JOURNAL  
24 FOR PUBLICATION, IT GETS SENT OUT TO OTHER  
25 RESEARCHERS, OTHER SCIENTISTS, USUALLY TWO OR  
26 THREE. AND THEY ARE PEER REVIEWERS. AND THEY  
27 REVIEW THE PAPER AND THEY DECIDE IF THE WORK IS  
28 VALID, IF IT'S IMPORTANT, IF IT SHOULD BE

1896

1 PUBLISHED.



2 AND SO THAT'S A PEER REVIEW PROCESS  
3 THAT MAINTAINS THE QUALITY OF THE RESEARCH THAT IS  
4 PUBLISHED.  
5 Q. SO JUST AS AN EXAMPLE, IF A  
6 SCIENTIST WANTED TO WRITE SOMETHING FOR SOME  
7 NON-PEER REVIEWED JOURNAL, SOMETHING THAT WASN'T  
8 PEER REVIEWED, AND THE SCIENTIST SENT IT IN TO A  
9 PUBLISHER SOMEPLACE, IT MIGHT GET PUBLISHED AND IT  
10 MIGHT BE BADLY FLAWED WORK?  
11 A. YES.  
12 Q. IN THE PEER REVIEW PROCESS, BEFORE  
13 THE SCIENTIST CAN PUBLISH SOMETHING, HE'S GOT A  
14 BUNCH, HE OR SHE HAS A BUNCH OF HIS OR HER  
15 COLLEAGUES LOOKING OVER THEIR SHOULDER SAYING,  
16 WELL, MAYBE YOU WANT TO CHANGE THIS COMA OR MAYBE  
17 THIS ISN'T EXACTLY RIGHT OR MAYBE YOU WANT TO JUMP  
18 OVER THESE HURDLES BEFORE YOU GET THIS PUBLISHED SO  
19 IT IS A REALLY EXCELLENT WORK?  
20 A. IT'S NOT SO MUCH COMMAS. IT REALLY  
21 HAS TO DO WITH WAS THE RESEARCH DESIGNED PROPERLY,  
22 ARE THE CONCLUSIONS VALID, IS THE INTERPRETATION  
23 THE APPROPRIATE INTERPRETATION.  
24 Q. ON THE ISSUE OF NICOTINE AND ON THE  
25 ISSUE OF ADDICTION TO NICOTINE, HAVE YOU PUBLISHED?  
26 A. YES.  
27 Q. DO YOU WANT TO GIVE THE JURY JUST A  
28 ROUND NUMBER OF HOW MANY TIMES YOU PUBLISHED ON

1897

1 THAT SUBJECT?  
2 A. WELL, I HAVEN'T COUNTED THAT, BUT I  
3 HAVE PUBLISHED 350 PAPERS THAT INCLUDE RESEARCH  
4 PAPERS, REVIEW ARTICLES, ET CETERA. THE VAST  
5 MAJORITY OF THAT INVOLVES NICOTINE SMOKING. NOT  
6 ALL, BUT PROBABLY TWO-THIRDS OR THREE-QUARTERS OF  
7 IT.  
8 Q. HAS TO DO WITH --  
9 A. NICOTINE OR TOBACCO RELATED ISSUES.  
10 Q. HOW DID YOU FIRST GET INVOLVED IN  
11 NICOTINE OR TOBACCO RELATED ISSUES, PLEASE?  
12 A. WELL, MY BASIC TRAINING IS INTERNAL  
13 MEDICINE. I WAS INTERESTED IN THE SPECIALTY OF  
14 CLINICAL PHARMACOLOGY, WHICH IS THE SPECIALTY OF  
15 MEDICINE THAT DEALS WITH THE EFFECTS OF DRUGS ON  
16 PEOPLE, DRUG DEVELOPMENT, NEW DRUGS, AS WELL AS  
17 DRUGS OF ABUSE AND DRUG OVERDOSES, THE WHOLE GAMUT.  
18 IN MY TRAINING, I WAS STUDYING  
19 MOSTLY DRUGS THAT EFFECT THE HEART AND BLOOD  
20 VESSELS AND CIRCULATION.  
21 ONE OF THE FIRST JOBS THAT I HAD  
22 WHEN I FINISHED WAS TO STUDY MARIJUANA, THE EFFECT  
23 OF MARIJUANA ON THE HEART.  
24 MY PRACTICE IS MOSTLY CARDIOLOGY,  
25 CARDIOVASCULAR DISEASE. AND AFTER A FEW YEARS OF  
26 STUDYING MARIJUANA, I DECIDED THAT THE REAL HEALTH  
27 ISSUES FOR SMOKED DRUGS WERE NOT MARIJUANA, THE  
28 REAL HEALTH ISSUE, BECAUSE THAT WAS AND STILL IS

1898

1 THE MAJOR PREVENTABLE CAUSE OF HEART DISEASE, SO IN  
2 ABOUT 1975, I SHIFTED MY RESEARCH AND I DECIDED I  
3 WOULD TRY TO UNDERSTAND NICOTINE.  
4 NOW, AT THAT TIME, THERE WAS VERY

5 LITTLE RESEARCH DONE ON WHAT NICOTINE DID TO THE  
6 BODY.

7 AND SO WE SYSTEMATICALLY GAVE  
8 PEOPLE SMALL DOSES OF NICOTINE, STUDIED HOW THE  
9 BODY WOULD HANDLE IT, STUDY WHAT HAPPENED, STUDY  
10 HOW CONTROLLED SMOKING BEHAVIOR, AND I HAVE BEEN  
11 DOING RESEARCH ON THAT FOR THE LAST 25 YEARS, ON  
12 THE QUESTION OF NICOTINE AND IT'S IMPORTANCE.

13 Q. OKAY.

14 NOW, BACK TO THE CONCEPT OF PEER  
15 REVIEW. DO SCIENTISTS OR JOURNALS WHERE SCIENTISTS  
16 WANT TO PUBLISH COME TO YOU AND SAY, DR. BENOWITZ,  
17 WILL YOU BE ONE OF OUR REVIEWERS FOR THIS PAPER TO  
18 MAKE SURE THAT THE RESEARCH WAS SET UP OKAY?

19 A. YES, VERY OFTEN.

20 Q. JUST GIVE --

21 A. PROBABLY ONCE A WEEK.

22 Q. ONCE A WEEK. OKAY.

23 A. I CAN'T HANDLE THEM ALL.

24 Q. HOW MANY DIFFERENT KINDS OF  
25 SCIENTIFIC JOURNALS HAVE YOU ACTED AS A PEER  
26 REVIEWER FOR?

27 A. I HAVE NOT COUNTED THEM BUT  
28 PROBABLY 50 OR 60.

1899

1 Q. HOW MANY TIMES DO YOU THINK YOU  
2 HAVE BEEN -- I AM NOT TALKING ABOUT YOUR ARTICLES  
3 NOW, YOU HAVE TOLD US TWO-THIRDS OR THREE-QUARTERS  
4 OF 350 ARTICLES HAVE TO DO WITH NICOTINE AND  
5 TOBACCO, TALKING ABOUT OTHER PEOPLE'S, HOW MANY  
6 TIMES DO YOU THINK YOU HAVE BEEN A PEER REVIEWER  
7 FOR OTHER'S ARTICLES, SCIENTIFIC WORKS ON TOBACCO,  
8 NICOTINE AND ADDICTION, PLEASE?

9 A. SEVERAL HUNDREDS.

10 Q. HAVE YOU BEEN INVOLVED WITH THE  
11 SURGEON GENERAL OF THE UNITED STATES OF AMERICA AS  
12 FAR AS TOBACCO AND NICOTINE RELATED ACTIONS?

13 A. YES.

14 Q. EXPLAIN.

15 A. WELL, THE SURGEON GENERAL, EVERY  
16 YEAR OR SO, PUTS OUT A REPORT TO CONGRESS AND TO  
17 THE COUNTRY ON ASPECTS OF SMOKING AND HEALTH. THIS  
18 STARTED WITH THE 1964 FIRST SURGEON GENERAL'S  
19 REPORT THAT LINKED SMOKING WITH LUNG CANCER.

20 I HAVE BEEN INVOLVED WITH PROBABLY  
21 FIVE OR SIX REPORTS.

22 THE WAY THESE WORK IS THAT  
23 SCIENTISTS ARE ASKED TO ACCUMULATE THE CURRENT  
24 STATE OF KNOWLEDGE AND TO PREPARE A SUMMARY  
25 DOCUMENT WHICH IS THEN REVIEWED BY OTHER SCIENTISTS  
26 ANE ULTIMATELY REVIEWED BY AND PRESENTED BY THE  
27 SURGEON GENERAL TO CONGRESS.

28 I HAVE BEEN INVOLVED IN WRITING

1900

1 SECTIONS OF THE SURGEON GENERAL'S REPORTS ON  
2 PASSIVE SMOKING, SMOKING IN WOMEN, SMOKING AND  
3 YOUTH, ETHNIC DIFFERENCES IN CIGARETTE SMOKING.

4 THE ONE I WAS MOST INVOLVED IN,  
5 HOWEVER, WAS THE 1988 SURGEON GENERAL'S REPORT ON  
6 NICOTINE ADDICTION WHERE I WAS ONE OF THE  
7 SCIENTIFIC EDITORS. THERE WERE FOUR EDITORS WHO

8 BASICALLY WERE RESPONSIBLE FOR PUTTING TOGETHER THE  
9 ENTIRE DOCUMENT. AND SO I SERVED IN THAT CAPACITY.  
10 Q. OKAY. SO THE 1988 SURGEON  
11 GENERAL'S REPORT ON SMOKING AND ADDICTION, YOU WERE  
12 ONE OF THE FOUR SCIENTIFIC EDITORS OF THE WORK?  
13 A. YES.  
14 Q. DID YOU WRITE SOME OF IT YOURSELF?  
15 A. A LOT OF IT.  
16 Q. HAVE YOU BEEN INVOLVED WITH VARIOUS  
17 SUCCEEDING SURGEONS GENERAL AS ONE HAS COME AND  
18 GONE AND THE NEXT ONE HAS COME AND GONE AND THE  
19 NEXT ONE HAS COME AND GONE ON THE ISSUE OF SMOKING  
20 AND NICOTINE AND HEALTH?  
21 A. YES. AS I SAID, I WROTE THE  
22 ADDICTION SECTIONS FOR THE REPORTS ON YOUTH  
23 SMOKING, ETHNIC DIFFERENCES AND SMOKING AND WOMEN.  
24 THOSE WILL BE THREE REPORTS SINCE THE '88 REPORT.  
25 Q. OKAY, SO WERE DIFFERENT SURGEONS  
26 GENERAL?  
27 A. I DON'T REMEMBER WHICH -- IF THEY  
28 WERE ALL DIFFERENT SURGEONS GENERAL. BUT THERE

1901

1 WERE A NUMBER OF TIMES.  
2 Q. HAVE YOU CONSULTED WITH OTHER  
3 BRANCHES OF THE UNITED STATES GOVERNMENT IN REGARD  
4 TO SMOKING TOBACCO AND NICOTINE AND ADDICTION,  
5 PLEASE.  
6 A. YES.  
7 Q. EXPLAIN.  
8 A. I HAVE WORKED WITH THE  
9 ENVIRONMENTAL PROTECTION AGENCY ON THEIR ASSESSMENT  
10 OF THE RISKS OF PASSIVE SMOKING. I HAVE WORKED  
11 WITH THE OCCUPATIONAL SAFETY HEALTH ADMINISTRATION  
12 WHEN THEY WERE DEALING WITH THE QUESTION OF  
13 WORKPLACE REGULATION OF SMOKING. AND I WAS ONE OF  
14 THEIR EXPERTS TALKING ABOUT HOW MUCH PEOPLE ARE  
15 EXPOSED.  
16 I WORKED WITH THE FOOD AND DRUG  
17 ADMINISTRATION WHEN THEY CONSIDERED WHETHER  
18 NICOTINE SHOULD BE CALLED A DRUG AND WHETHER IT  
19 SHOULD BE REGULATED.  
20 AND I HAVE ALSO WORKED WITH THE  
21 FEDERAL TRADE COMMISSION IN SOME OF THE HEARINGS  
22 ABOUT TESTING METHODS FOR CIGARETTES.  
23 AND FINALLY, I HAVE WORKED FOR THE  
24 NATIONAL INSTITUTES OF HEALTH ON A GRANT STUDY  
25 SECTION. THE N.I.H., AS IT IS CALLED, IS THE  
26 AGENCY THAT PROVIDES RESEARCH GRANTS TO SCIENTISTS  
27 TO DO MEDICAL RESEARCH. AND THEY GRANT REVIEW  
28 PANELS. SCIENTISTS ARE ASKED TO SERVE FOR FOUR

1902

1 YEARS AND TO REVIEW GRANT APPLICATIONS FROM OTHER  
2 SCIENTISTS.  
3 SO I SERVED ON THAT COMMITTEE FOR  
4 FOUR YEARS.  
5 Q. OKAY, THANKS.  
6 I AM NOT GOING TO HIT ON ALL OF  
7 YOUR QUALIFICATION ALL AT ONCE. I AM GOING TO TALK  
8 JUST A LITTLE BIT MORE ABOUT THEM AND TALK ABOUT  
9 SOME SUBJECT MATTER AND THEN LATER ON RETURN TO  
10 YOUR QUALIFICATIONS.

11 WHO'S DAVID KESSLER?  
12 A. HE WAS THE FOOD AND DRUG  
13 ADMINISTRATION COMMISSIONER AT THE TIME THAT  
14 NICOTINE WAS JUDGED TO BE A DRUG AND WHEN THE  
15 F.D.A. DECIDED THAT NICOTINE SHOULD BE REGULATED AS  
16 A DRUG.  
17 Q. DID YOU --  
18 MR. CARLTON: OBJECTION, RELEVANCE.  
19 THE COURT: I AM GOING TO ALLOW YOU TO  
20 PROCEED. FOUNDATION AT THIS TIME, THOUGH, PLEASE.  
21 MR. PIUZE: YES.  
22 THE COURT: FOUNDATION FOR YOUR  
23 QUESTIONS.  
24 Q BY MR. PIUZE: WHAT I AM  
25 INTERESTED IN IS, DID YOU BRIEF DR. KESSLER IN  
26 REGARD TO THESE ISSUES?  
27 A. YES. I WAS ONE OF THE PEOPLE WHO  
28 DID THAT. HE NEEDED BACKGROUND TO UNDERSTAND WHAT

1903

1 NICOTINE DID AND HOW IT REGULATED SMOKING AND  
2 NICOTINE CONTENT OF CIGARETTES. AND I HAD DONE  
3 RESEARCH IN ALL THESE AREAS SO I DID BRIEF  
4 DR. KESSLER AND HIS STAFF.  
5 THE COURT: GOING TO THE ISSUE OF  
6 QUALIFICATIONS. PROCEED.  
7 MR. PIUZE: RIGHT. AND THAT'S ALL I AM  
8 TRYING TO GET AT.  
9 THE COURT: DON'T ARGUE, JUST PROCEED.  
10 MR. PIUZE: OKAY, THANK YOU.  
11 Q BY MR. PIUZE: WHEN DR. KESSLER,  
12 THE HEAD OF THE F.D.A., NEEDED SOME INFORMATION  
13 REGARDING NICOTINE, TOBACCO, THE ADDICTIVE  
14 PROPERTIES OF NICOTINE, ONE OF THE PEOPLE HE CAME  
15 AND ASKED, PLEASE TELL ME ABOUT IT, WAS THAT YOU?  
16 A. YES.  
17 Q. YOU ARE A PRACTICING DOCTOR?  
18 A. YES.  
19 Q. UNDER WHAT CIRCUMSTANCES DO YOU SEE  
20 PATIENTS, PLEASE.  
21 A. WELL, I AM A PHYSICIAN WHO IS FULLY  
22 EMPLOYED BY A MEDICAL SCHOOL. SO I SPEND ABOUT A  
23 THIRD OF MY TIME ON PATIENT CARE.  
24 THAT INCLUDES ONE-HALF DAY A WEEK  
25 WHEN I SEE PATIENTS IN THE CARDIOLOGY CLINIC. SO  
26 IT'S GENERAL HEART DISEASE.  
27 TWO MONTHS OF THE YEAR I AM ONE OF  
28 THE PHYSICIANS RESPONSIBLE FOR THE MEDICINE BOARDS,

1904

1 SO I WORK WITH A TEAM OF INTERNS AND RESIDENTS AND  
2 MEDICAL STUDENTS TO TAKE CARE OF PATIENTS ON THE  
3 UNIT.  
4 ONE MONTH IS GENERAL MEDICINE, ONE  
5 MONTH IS CARDIOVASCULAR DISEASE.  
6 AND THEN PART OF MY CLINICAL  
7 PHARMACOLOGY DIVISION IS THE POISON CENTER. AND I  
8 SPEND SIX WEEKS AS A CONSULTING PHYSICIAN FOR THE  
9 POISON CENTER. SO THAT TOTALS UP ABOUT A THIRD OF  
10 MY TIME ALL TOGETHER.  
11 Q. WHETHER YOU TAKE CARE OF HEART  
12 PATIENTS, AS A CARDIOLOGIST, IS SMOKING SOMETIMES  
13 AN ISSUE?

14 A. WHENEVER SOMEONE SMOKES IT IS AN  
15 ISSUE BECAUSE SMOKING IS A MAJOR CAUSE OF HEART  
16 DISEASE.  
17 IF SOMEONE HAS CORONARY DISEASE, IT  
18 INCREASES THEIR RISK OF DYING SUDDENLY FOUR-FOLD.  
19 IT INCREASES THE RISK OF HAVING A HEART ATTACK  
20 TWO-FOLD. AND EVERY PATIENT THAT I SEE WHO SMOKES,  
21 I TRY TO GET THEM TO STOP.  
22 Q. WHEN YOU SEE A PATIENT -- LET ME  
23 START THIS DIFFERENTLY.  
24 BEFORE A PATIENT GETS TO SEE YOU,  
25 HAS THIS PATIENT NECESSARILY GONE THROUGH A COUPLE  
26 OTHER LAYERS OF DOCTORS ALREADY?  
27 A. GENERALLY, THEY HAVE TO BE REFERRED  
28 TO THE CARDIOLOGY CLINIC, OR IF SOMEONE I HAVE SEEN

1905

1 IN A HOSPITAL ALREADY, I REFER THEM TO FOLLOW THEM  
2 AT THE CLINIC.  
3 Q. SO WHEN A PATIENT, A CARDIOLOGY  
4 PATIENT GETS TO SEE YOU, TYPICALLY, DOES THAT MEAN  
5 THAT THAT PARTICULAR PERSON HAS SOMETHING FAIRLY  
6 SERIOUSLY WRONG WITH THEIR HEART?  
7 A. YES.  
8 Q. NOW, IN THESE PATIENTS WHO SEE YOU,  
9 WHO HAVE GOT SOMETHING FAIRLY SERIOUSLY WRONG WITH  
10 THEIR HEART AND YOU FIND OUT THEY ARE SMOKING AND  
11 YOU, THE PROFESSOR COMES IN AND SAYS, STOP SMOKING,  
12 BECAUSE IF YOU DON'T, YOU GOT A FOUR-FOLD INCREASE  
13 OF DEATH AND A TWO-FOLD INCREASE IN HEART ATTACK,  
14 THEY STOP; RIGHT?  
15 A. NO. I WISH THEY DID.  
16 MOST OF THE PATIENTS THAT I SEE  
17 HAVE ALREADY BEEN TOLD MANY TIMES TO STOP SMOKING.  
18 MOST OF THEM SAY THEY WOULD LIKE TO  
19 STOP SMOKING AND THEY HAVE TRIED TO STOP SMOKING  
20 BUT THEY HAVE NOT BEEN ABLE TO FOR A VARIETY OF  
21 REASONS.  
22 AND I TRY TO SPEND TIME TO TRY TO  
23 FIGURE OUT WHY, WHAT HAS HAPPENED BEFORE WHEN THEY  
24 TRIED TO QUIT SMOKING.  
25 I ASK THEM IF THEY WOULD LIKE TO  
26 TRY AGAIN. I OFFER THEM HELP WITH EITHER  
27 COUNSELING OR MEDICATION OR BOTH. AND I TELL THEM  
28 THAT IT'S COMMON HISTORY THAT SMOKERS TRY AND FAIL

1906

1 TO QUIT SMOKING MANY TIMES, BUT EVENTUALLY MOST  
2 PEOPLE DO SUCCEED.  
3 AND I SAY, JUST TRY AGAIN AND I  
4 WILL HELP YOU AND EVENTUALLY YOU WILL SUCCEED.  
5 THAT'S MY APPROACH AND HOPEFULLY  
6 THEY WILL SUCCEED. SOME DO AND SOME DON'T.  
7 Q. SO YOUR APPROACH SOMETIMES SUCCEEDS  
8 AND SOMETIMES DOESN'T SUCCEED?  
9 A. YES.  
10 Q. IS NICOTINE ADDICTIVE?  
11 A. ABSOLUTELY.  
12 Q. IS THIS SOMETHING YOU JUST FOUND  
13 OUT IN THE YEAR 2001?  
14 A. NO. THE FACT THAT NICOTINE IS  
15 ADDICTIVE HAS BEEN KNOWN FOR MANY YEARS.  
16 I THINK WHAT WE HAVE LEARNED IN THE

17 LAST 20 YEARS IS HOW IT IS ADDICTIVE AND WHY IT IS  
18 ADDICTIVE.  
19 THE FACT THAT IT IS ADDICTIVE AS  
20 BEEN KNOWN FOR A LONG TIME.  
21 Q. WHY IS IT ADDICTIVE?  
22 A. WELL, LET ME JUST START BY TALKING  
23 ABOUT WHAT IS NICOTINE.  
24 Q. OKAY.  
25 A. IT'S A CHEMICAL THAT'S FOUND MOSTLY  
26 IN TOBACCO. SIGNIFICANT AMOUNTS, OBVIOUSLY IN  
27 TOBACCO.  
28 IT'S A CHEMICAL THAT HAS A

1907

1 STRUCTURE THAT'S LIKE A BODY HORMONE,  
2 ACETYLCHOLINE.  
3 Q. STOP.  
4 A. IT'S CALLED ACETYLCHOLINE AND IT'S  
5 IMPORTANT HERE MORE THAN IN THE BODY BECAUSE THIS  
6 IS RESPONSIBLE FOR NERVE COMMUNICATION.  
7 ONE NERVE TALKS TO ANOTHER. IT  
8 SIGNALS BY RELEASE OF THIS HORMONE. I COULD CALL  
9 IT A.C.H., MAYBE THAT WOULD BE EASIER.  
10 Q. A.C.H., WHERE IS THAT IN THE BODY?  
11 A. IT'S THROUGHOUT THE NERVOUS SYSTEM,  
12 IN VERY HIGH CONCENTRATION IN THE BRAIN.  
13 A.C.H. WORKS BY BINDING TO WHAT'S  
14 CALLED A RECEPTOR. A RECEPTOR IS A PROTEIN THAT  
15 BEHAVES LIKE A LOCK AND KEY MECHANISM SO THE KEY  
16 WOULD BE THE HORMONE OR A.C.H. THAT ATTACHES TO  
17 THE RECEPTOR AND THEN ACTIVATES THE RECEPTOR.  
18 AND THEN THE RECEPTOR DOES  
19 SOMETHING, CAUSES AN EFFECT IN THE BRAIN THAT  
20 ACTUALLY CAUSES RELEASE OF OTHER HORMONES THAT  
21 EFFECT MOOD AND BEHAVIOR.  
22 Q. LET ME STOP YOU FOR A SECOND.  
23 A.C.H. ALLOWS THE RECEPTORS TO  
24 WORK?  
25 A. RIGHT. THAT'S THE KEY THAT OPENS  
26 UP THE LOCK. THE RECEPTOR IS THE LOCK.  
27 Q. DEFINE 'RECEPTOR.'  
28 A. OKAY. WELL, A RECEPTOR IS A

1908

1 PROTEIN THAT HAS GOT A PART OF ITS STRUCTURE IS TO  
2 ALLOW HORMONES OR CHEMICALS TO ATTACH TO IT.  
3 THERE ARE -- IT'S SHAPED IN SUCH A  
4 WAY, SORT OF LIKE A LOCK SO A KEY FITS IN. AND IT  
5 IS JUST THE RIGHT SHAPE. AND IN THESE RECEPTORS,  
6 THESE ARE A.C.H. RECEPTORS THAT ARE JUST THE RIGHT  
7 SHAPE TO FIT INTO THIS KEYHOLE.  
8 Q. SO WHAT HAPPENS WHEN THE KEY FITS  
9 INTO THE KEYHOLE?  
10 A. WELL, IT ACTIVATES THE RECEPTOR,  
11 ACTUALLY, CAUSES A CHANGE IN THE SHAPE OF THE  
12 RECEPTOR, ACTIVATES A NERVE TO FIRE AND THEN THAT  
13 NERVE, IN TURN, RELEASES OTHER HORMONES THAT HAVE  
14 EFFECTS ON BEHAVIOR AND THINKING AND MOOD.  
15 SO, ANYWAY, GETTING BACK TO WHAT I  
16 WAS SAYING BEFORE, NICOTINE, IS SHAPED LIKE A.C.H.  
17 IT'S NOT NORMALLY IN THE BODY. BUT IF A PERSON  
18 TAKES IN NICOTINE, IT ATTACHES TO THE SAME  
19 RECEPTORS THAT ARE MEANT FOR A.C.H. SO IT'S A WAY

20 FOR YOU TO SORT OF TAKE, IN A DRUG FORM, A DRUG  
21 THAT STIMULATES RECEPTORS THAT ARE MEANT FOR A BODY  
22 HORMONE.  
23 SO YOU TAKE NICOTINE AND YOU  
24 ACTIVATE THE RECEPTORS JUST AS IF YOUR BRAIN WAS  
25 RELEASING A.C.H.  
26 Q. SO NICOTINE IS LIKE A DUPLICATE KEY  
27 FOR A.C.H.?  
28 A. RIGHT.

1909

1 Q. AND NICOTINE, THEREFORE,  
2 ARTIFICIALLY DOES WHAT YOUR BRAIN CAN DO UNDER  
3 NORMAL CIRCUMSTANCES?  
4 A. RIGHT.  
5 BUT IT DOES IT IN LARGER AMOUNTS  
6 BECAUSE YOU CAN ACTIVATE THESE RECEPTORS MORE WITH  
7 NICOTINE THAN THE BRAIN WOULD NORMALLY DO IT WITH  
8 A.C.H. AND YOU CAN DO IT AT DIFFERENT TIMES. YOU  
9 CAN DO IT AT TIMES WHEN A.C.H. LEVELS MIGHT BE LOW  
10 BUT YOU CAN TAKE A CIGARETTE AND DELIVER THE  
11 RECEPTORS.  
12 SO YOU CAN SORT OF TAKE OVER A  
13 NORMAL BODY FUNCTION WITH THE DRUG.  
14 Q. SO LET ME STOP YOU THERE, AGAIN.  
15 BECAUSE I KNOW YOU HAVE TALKED  
16 ABOUT THIS LOTS OF TIMES, BUT THIS IS THE FIRST  
17 TIME THAT WE ARE HEARING IT.  
18 INSIDE OF A PERSON'S BODY, THE BODY  
19 IS REGULATED, YOU KNOW, TO BE A NORMAL KIND OF  
20 REGULAR BODY, UNDER CONTROL, REGULATED BODY.  
21 THERE'S A CERTAIN AMOUNT OF A.C.H. WHICH IS THERE,  
22 AND EVERY ONCE IN AWHILE, WHENEVER THE BODY TELLS  
23 IT TO, IT DOES ITS OPEN THE LOCK THING, AND IT HAS  
24 THE RESULTS THAT ARE NECESSARY TO KEEP THE BODY IN  
25 TUNE.  
26 IS THAT RIGHT SO FAR?  
27 A. YES.  
28 Q. WHEN SOMEONE TAKES NICOTINE INTO

1910

1 THEIR BODY, THE AMOUNT OF NICOTINE THE PERSON CAN  
2 TAKE INTO THE BODY CAN BE WAY MORE, CAN MIMIC WAY  
3 MORE A.C.H. THAN THE BODY USUALLY NEEDS AND SO THE  
4 THING EITHER GETS UNLOCKED AND THE DOOR OPENED  
5 WIDER OR THE DOOR OPENED MORE FREQUENTLY OR BOTH.  
6 IS THAT A ROUGH ANALOGY SO FAR?  
7 A. YES.  
8 Q. ONE MORE THING BEFORE WE GO ON.  
9 IF NICOTINE COMES FROM TOBACCO  
10 SMOKE, THE PERSON SMOKING, WHETHER HE OR SHE KNOWS  
11 IT OR NOT, THIS PERSON CAN DETERMINE HOW MUCH OF  
12 THIS DUPLICATE A.C.H. HE OR SHE IS GOING TO PUT IN  
13 THE BODY BY HOW MUCH HE OR SHE IS SMOKING, HOW MUCH  
14 HE OR SHE INHALES, STUFF LIKE THAT?  
15 MR. CARLTON: OBJECTION, LEADING.  
16 THE COURT: IT WAS LEADING.  
17 MR. PIUZE: WITH AN EXPERT, I DON'T KNOW  
18 HOW MUCH LEEWAY YOU WANT.  
19 THE COURT: I WILL ALLOW IT. JUST AS  
20 LONG AS IT'S NOT TOO --  
21 THE WITNESS: LET ME JUST --  
22 THE COURT: IS WHAT HE SAID ACCURATE?

23 THE WITNESS: YES.  
24 Q BY MR. PIUZE: NOW THAT I HAVE  
25 SAID MY NON-DOCTOR PIECE, GO AHEAD, PLEASE, AS A  
26 DOCTOR, TELL US WHY IT WASN'T COMPLETELY ACCURATE?  
27 A. WELL, I WAS GOING TO EXPLAIN THE  
28 WHOLE ISSUE OF NICOTINE DELIVERY FROM A CIGARETTE,

1911

1 JUST IN TERMS OF WHAT IS NICOTINE, THE REASON WHY  
2 NICOTINE IS IN A PLANT IS THOUGHT TO BE BECAUSE IT  
3 IS A NATURAL INSECTICIDE. IT KILLS BUGS. AND IT  
4 DOES IT BECAUSE IT WORKS ON THE BUG'S BRAIN  
5 RECEPTORS THE SAME WAY IT WORKS ON PEOPLE. BUT THE  
6 INSPECT'S RECEPTORS OR BRAINS ARE MORE SENSITIVE.  
7 BUT NICOTINE IS WELL-KNOWN AS AN  
8 INSECTICIDE. IT IS SOLD IN STORES AS BLACK FLAG  
9 40 -- YOU CAN BUY IT -- OR BLACK LEAF 40, AND USE  
10 IT TO SPRAY ON ROSES. THAT'S AT HIGHER  
11 CONCENTRATIONS.  
12 PEOPLE CAN USE IT WITHOUT GETTING  
13 SICK, IN PART, BECAUSE OF THE CIGARETTE. WHEN YOU  
14 SMOKE A CIGARETTE, WHEN YOU HEAT UP A CIGARETTE,  
15 YOU BOIL OFF NICOTINE.  
16 NICOTINE THEN BOILS OFF AND THEN  
17 COMBINES WITH OTHER THINGS THAT ARE IN THE  
18 CIGARETTE TO FORM DROPLETS WHICH CONTAIN TAR, WATER  
19 AND NICOTINE.  
20 AND THOSE DROPLETS ARE WHAT'S  
21 CALLED AEROSOL, A BUNCH OF DROPLETS THAT ARE IN  
22 GAS, WHICH IS CARBON MONOXIDE AND OTHER GASES.  
23 YOU BREATHE NICOTINE -- YOU BREATHE  
24 THE GAS IN. IT GOES TO YOUR LUNGS, VERY RAPIDLY  
25 GETS ABSORBED. AND SO WITHIN 10 OR 15 SECONDS OF  
26 TAKING A PUFF, NICOTINE GETS TO YOUR BRAIN BECAUSE  
27 IT GOES RIGHT, LUNGS, HEART, BRAIN.  
28 ONE OF THE THINGS ABOUT SMOKING IS

1912

1 THAT BECAUSE IT GOES RIGHT TO YOUR BRAIN AND IT'S  
2 IN A SHORT PERIOD OF TIME, YOU CAN GET VERY HIGH  
3 CONCENTRATIONS, CONCENTRATIONS THAT IF YOU TRY TO  
4 EAT NICOTINE, WOULD POISON YOU. BUT BY SMOKING  
5 THEM, YOU CAN GET VERY HIGH CONCENTRATIONS IN A  
6 SHORT TIME TO THE BRAIN.  
7 OTHER THINGS THAT ARE IMPORTANT,  
8 ONE IS AS YOU MENTIONED BEFORE, ON A PUFF TO PUFF  
9 BASIS, BECAUSE YOU GET AN EFFECT IN 10 OR 15  
10 SECONDS, YOU CAN WHAT'S CALLED TITRATE, YOU CAN  
11 ADJUST THE DOSE TO GET JUST THE DOSE THAT YOU WANT.  
12 SECOND THING IS THAT BECAUSE YOU DO  
13 SOMETHING, YOU TAKE A PUFF AND YOU GET THE EFFECT  
14 IN 10 OR 15 SECONDS. THERE IS A LOT OF WHAT'S  
15 CALLED SCIENTIFICALLY IMMEDIATE REINFORCEMENT.  
16 THAT MEANS YOU DO SOMETHING AND YOU GET  
17 CONSEQUENCES RIGHT AWAY.  
18 AND, OF COURSE, IT'S A GOOD  
19 CONSEQUENCE FOR MOST SMOKERS, THEY LIKE WHAT IT  
20 DOES.  
21 AND THAT COMBINATION OF DOING  
22 SOMETHING AND GETTING IMMEDIATE REINFORCEMENT IS  
23 WELL-KNOWN TO BE A SITUATION THAT MOST ENCOURAGES  
24 ADDICTION.  
25 IT IS MOST ADDICTING DRUGS, YOU



26 TAKE SOMETHING, YOU GET AN EFFECT RIGHT AWAY, THE  
27 BODY CONNECTS IT RIGHT AWAY AND THAT'S THE MOST  
28 COMMON SITUATION FOR ADDICTION.

1913

1 SO WE KNOW THAT CIGARETTES ARE THE  
2 MOST ADDICTING WAY TO TAKE NICOTINE, JUST LIKE  
3 SMOKING CRACK COCAINE IS THE MOST ADDICTING WAY THE  
4 USE COCAINE. BECAUSE IF YOU SMOKE COCAINE, COCAINE  
5 GETS THERE IN HIGHER CONCENTRATIONS, FASTER, AND  
6 YOU CAN CONTROL THE DOSE A LITTLE BIT.

7 Q. AS OPPOSED TO, LET'S STOP THERE FOR  
8 A SECOND, USING CRACK AS OPPOSED TO WHAT, SNORTING  
9 COCAINE?

10 A. SNORTING, YEAH, SNORTING COCAINE OR  
11 YOU COULD EVEN SWALLOW COCAINE AND YOU CAN GET AN  
12 EFFECT. BUT IT IS MUCH SLOWER ONSET. YOU CAN'T  
13 CONTROL THE DOSE, SO IT'S NOT WIDELY USED THAT WAY.

14 BUT SMOKING COCAINE IS MUCH MORE  
15 ADDICTIVE THAN SNORTING COCAINE.

16 Q. AND IS IT MUCH MORE ADDICTIVE  
17 BECAUSE, FROM THE TIME THE PERSON DOES SOMETHING TO  
18 THE TIME OF THE HIT, THE HIGH, THE REACTION, IT'S  
19 QUICKER?

20 A. IT'S QUICKER AND YOU CAN JUST  
21 TITRATE HOW MUCH EFFECT YOU WANT.

22 Q. NOW, YOU HAVE SAID THAT TWICE BUT  
23 WHEN YOU SAY YOU CAN TITRATE THE EFFECTS YOU WANT,  
24 THAT ISN'T EXACTLY IN THE KIND OF TERMS WE USE  
25 EVERY DAY.

26 PLEASE SAY THAT DIFFERENTLY.

27 A. WELL, IF YOU HAVE, SAY, THERE'S A  
28 CERTAIN AMOUNT OF NICOTINE THAT MAKES YOU FEEL

1914

1 GREAT OR HELPS YOU CONCENTRATE DOING YOUR JOB OR  
2 HELPS YOU DEAL WITH STRESS, WHATEVER YOU ARE TRYING  
3 TO SMOKE FOR, I WILL TALK ABOUT THAT IN A FEW  
4 MINUTES, THAT MAY REQUIRE A CERTAIN AMOUNT OF  
5 NICOTINE IN YOUR BRAIN TO DO THAT.

6 BUT AFTER EACH PUFF YOUR BRAIN CAN  
7 REGISTER HOW MUCH NICOTINE YOU GOT THERE.

8 AND THE NEXT PUFF YOU CAN TAKE A  
9 BIGGER PUFF OR A SMALLER PUFF, THIS IS AUTOMATIC,  
10 YOUR BODY JUST DOES IT UNCONSCIOUSLY, TO GET THE  
11 AMOUNT OF NICOTINE. AND THEN YOU CAN SMOKE A  
12 CIGARETTE DEEPLY, YOU CAN SMOKE IT NOT SO DEEPLY.  
13 YOU CAN PUT IT OUT SOONER OR LATER.

14 BY DOING ALL THOSE THINGS, YOU CAN  
15 GET WHATEVER AMOUNT OF NICOTINE DOSE YOUR BRAIN  
16 WANTS.

17 Q. SOMETIMES IN TODAY'S CURRENT WORLD,  
18 I SEE WORKERS GOING OUTSIDE OF A BUILDING, IT  
19 DOESN'T HAVE TO BE A WORKER, IT COULD BE A JUROR OR  
20 IT COULD BE ANYONE, SOMEONE GOES OUTSIDE OF A  
21 BUILDING TO HAVE A PUFF OF A CIGARETTE AND I  
22 SOMETIMES NOTICE THAT WHEN I GET OUTSIDE, THE FIRST  
23 COUPLE OF HITS OF ONE OF THESE IS BIG ONES LIKE  
24 THAT (INDICATING).

25 DOES THAT PLAY INTO WHAT YOU WERE  
26 SAYING?

27 A. YEAH, THAT'S EXACTLY RIGHT.  
28 WE DID RESEARCH THAT I PUBLISHED

1915

1 SEVERAL YEARS AGO, SORT OF LIKE THAT.  
2 I ASKED PEOPLE TO SMOKE FEWER  
3 CIGARETTES. SO I -- PEOPLE WHO NORMALLY SMOKED 30  
4 CIGARETTES A DAY, I GIVE THEM 15 TO SMOKE IN A DAY  
5 OR 10 OR 5.  
6 AND WHAT I FOUND IS THAT IF YOU  
7 RESTRICTED SOMEONE FROM 30 DOWN TO 5, THEY TAKE IN  
8 THREE TIMES AS MUCH NICOTINE IN SMOKE PER  
9 CIGARETTE. SO REALLY TRYING TO GET THE MOST DOSE  
10 THEY CAN TO MAINTAIN WHAT THE BODY SEES AS A DESIRE  
11 LEVEL.  
12 SO IF YOU CAN'T SMOKE AS OFTEN AS  
13 YOU LIKE, YOU DO TAKE IN MORE WITH EACH CIGARETTE.  
14 Q. THANKS.  
15 NOW, WHILE WE ARE STOPPED HERE  
16 MOMENTARILY. YOU HAVE TOLD US ABOUT AN EXTENSIVE  
17 BACKGROUND IN TOBACCO, NICOTINE, SMOKING,  
18 ADDICTION. BUT IN SOME OF THE LAST ANSWERS NOW,  
19 YOU HAVE GONE AWAY FROM NICOTINE AND INTO COCAINE,  
20 FOR INSTANCE.  
21 A. YES.  
22 Q. HOW DO YOU KNOW ABOUT STUFF LIKE  
23 COCAINE PLEASE.  
24 A. WELL, I HAVE DONE SOME RESEARCH ON  
25 OTHER STIMULANTS, COCAINE, CAFFEINE, ON OTHER  
26 DRUGS. AND I HAVE WRITTEN AND TAUGHT A LOT ABOUT  
27 DRUG ADDICTION IN GENERAL. I HAVE WRITTEN MANY  
28 CHAPTERS THAT TALK ABOUT ADDICTION TO DRUGS

1916

1 BROADLY.  
2 AND ONE OF THE THINGS THAT BECAME  
3 CLEAR IN THE SURGEON GENERAL'S REPORT IS THAT THERE  
4 ARE A LOT OF SORT OF BRAIN MECHANISMS AND  
5 BEHAVIORAL MECHANISMS THAT ARE IN COMMON WITH  
6 DIFFERENT DRUGS OF ABUSE.  
7 SO NICOTINE AND ALCOHOL AND COCAINE  
8 AND HEROIN ARE NOT THAT DIFFERENT, EXCEPT FOR  
9 INTOXICATION. INTOXICATION IS DIFFERENT. PEOPLE  
10 OBVIOUSLY DON'T GET LOADED FROM NICOTINE THE WAY  
11 THEY DO FROM COCAINE OR ALCOHOL OR HEROIN.  
12 BUT IF YOU PUT THAT ASIDE, SOME OF  
13 THE OTHER BEHAVIORAL EFFECTS AND BEHAVIORAL ASPECTS  
14 OF IT ARE VERY SIMILAR.  
15 Q. YOU JUST USED THE TERM, A TERM,  
16 "DRUGS OF ABUSE."  
17 WHAT DO YOU MEAN BY THAT, PLEASE.  
18 A. THESE ARE DRUGS THAT PEOPLE USE TO,  
19 WHAT'S THE BEST WORD, TO CONTROL BEHAVIOR, OR TO  
20 INFLUENCE MOOD OR INFLUENCE BEHAVIOR. OFTEN THE  
21 DRUGS ARE USED IN EXCESS. OFTEN THE DRUGS ARE USED  
22 TO PERSONAL HARM OR SOCIAL HARM.  
23 SO THESE ARE DRUGS THAT ARE USED IN  
24 A WAY THAT IS REALLY DETRIMENTAL. I'D SAY THAT'S  
25 PROBABLY THE BEST DEFINITION.  
26 Q. OKAY. AND DRUGS OF ABUSE,  
27 INCLUDING WHAT?  
28 A. WELL, THE MAIN DRUGS OF ABUSE THAT

1917

1 WE TALK ABOUT ARE, BESIDES NICOTINE, WOULD BE

2 ALCOHOL, HEROIN, OTHER NARCOTICS, OTHER OPIATES,  
3 MARIJUANA, COCAINE, AMPHETAMINES AND OTHER  
4 STIMULANTS, BARBITURATES, OTHER KINDS OF SEDATIVE  
5 DRUGS, AND THINGS LIKE GLUE SNIFFING. STEROIDS CAN  
6 ACTUALLY BE ABUSED.

7 I GUESS THAT'S, FOR THE MOST  
8 PART -- SOME MARIJUANA. DID I SAY MARIJUANA IS  
9 ALSO ABUSED?

10 Q. NICOTINE IS IN THERE?

11 A. RIGHT, NICOTINE IS IN THERE.

12 Q. WELL, LET'S GO BACK -- THANK YOU.  
13 LET'S GO BACK TO WHAT WE WERE  
14 TALKING ABOUT WHICH IS, I THINK YOU WERE TALKING  
15 ABOUT NICOTINE?

16 A. RIGHT.

17 Q. AND WE HAD GONE THROUGH THE A.C.H.  
18 AND HOW --

19 A. RIGHT. NOW WHAT A.C.H. EFFECTS DO,  
20 WHAT ACTIVATING THE RECEPTOR DOES IS IT CAUSES THE  
21 BRAIN TO RELEASE A NUMBER OF HORMONES. ONE HORMONE  
22 THAT'S TALKED ABOUT A LOT IS DOPAMINE.

23 DOPAMINE IS TALKED ABOUT A LOT  
24 BECAUSE THAT IS A HORMONE IN THE BRAIN THAT'S  
25 INVOLVED WITH PLEASURE, SOMETHING FEELING GOOD OR  
26 YOU FEELING GOOD OR SOME SORT OF PLEASURABLE  
27 RESPONSE.

28 AND EVERY DRUG OF ABUSE RELEASES

1918

1 DOPAMINE IN KEY PARTS OF THE BRAIN. THAT'S A  
2 COMMONALITY.

3 NICOTINE ALSO CAUSES OTHER HORMONES  
4 TO BE RELEASED, TO DO DIFFERENT THINGS.

5 ONE HORMONE, AS I SAID, CAUSES  
6 PLEASURE. ONE HORMONE CAN CAUSE AROUSAL OF  
7 STIMULATION. SOME SMOKERS SAY THE FIRST CIGARETTE  
8 IN THE MORNING HELPS ME WAKE UP, LIKE COFFEE WOULD.

9 SMOKERS WILL SAY THAT HELPS ME  
10 CONCENTRATE AND FOCUS AND STAY ALERT.

11 THERE ARE OTHER HORMONES THAT ARE  
12 INVOLVED IN PERFORMANCE, THINKING AND PERFORMANCE  
13 EFFECTS.

14 SO SOME PEOPLE SAY I CAN WORK  
15 BETTER, YOU CAN CONCENTRATE BETTER WITH NICOTINE.

16 THERE ARE OTHER HORMONES THAT ARE  
17 INVOLVED IN STRESS MECHANISM, SO MANY SMOKERS SAY,  
18 I FEEL STRESSED, A CIGARETTE REALLY HELPS ME DEAL  
19 WITH STRESS.

20 THERE ARE SOME EFFECTS THAT ARE A  
21 LITTLE BIT LIKE ANTI-DEPRESSANT DRUGS. SO MANY  
22 SMOKERS SAY IF I FEEL BAD, IF I FEEL DEPRESSED, I  
23 HAVE A CIGARETTE, IT MAKES ME FEEL BETTER.

24 AN IMPORTANT CONCEPT, AND ALSO  
25 EATING. THE EFFECTS OF NICOTINE TO REDUCE BODY  
26 WEIGHT, TO LOSE APPETITE.

27 AND SOME PEOPLE SMOKE FOR BODY  
28 WEIGHT CONTROL.

1919

1 THE THING THAT SMOKERS FIND IS THAT  
2 THEY USE NICOTINE TO HELP COPE WITH A LOT OF DAILY  
3 STRESSES.

4 SO THEY CAN GET STIMULATION, IF

5 THEY NEED IT, THEY CAN GET RELAXATION IF THEY ARE  
6 STRESSED. THEY CAN HELP LIFT THEIR MOOD. THEY CAN  
7 HELP CONCENTRATE. THEY CAN HELP FOCUS. AND MANY  
8 SMOKERS COME TO DEPEND ON NICOTINE TO GET THROUGH  
9 DAILY LIFE STRESSES. THEY USE NICOTINE EVERY DAY  
10 IN A REGULAR WAY AND WHEN THEY DON'T HAVE IT, THEY  
11 FEEL QUITE LOST AND THEIR BEHAVIOR IS DISRUPTED IN  
12 A SENSE.

13 SO PART ONE -- ONE-HALF OF WHAT  
14 PEOPLE GET FROM SMOKING IS THESE NICOTINE EFFECTS  
15 THAT THEY USE TO CONTROL MOOD AND BEHAVIOR.

16 THE OTHER THING WHICH IS VERY  
17 IMPORTANT IS THAT THERE'S WHAT'S CALLED TOLERANCE  
18 TO NICOTINE AND OTHER DRUGS OF ABUSE AND ACTUALLY  
19 ANY DRUG THAT EFFECTS THE BRAIN.

20 TOLERANCE MEANS THAT THE BRAIN IS  
21 TRYING TO NORMALIZE ITS FUNCTION. SO IF IT GETS  
22 TOO MUCH STIMULATION IN THESE RECEPTORS, THE BRAIN  
23 TRIES TO NORMALIZE THINGS.

24 AND WHAT HAPPENS IS THE BRAIN  
25 ACTUALLY CHANGES THE NUMBER OF RECEPTORS IN THE  
26 BRAIN THAT ARE MEANT TO BE A.C.H. RECEPTORS.

27 THEY ARE INCREASED IN MANY PARTS OF  
28 THE BRAIN. THEY ARE DOUBLED.

1920

1 NOW, THEY DON'T WORK THE SAME WAY.  
2 BUT THE STRUCTURE OF THE BRAIN CHANGES. SO YOU CAN  
3 DO SCANNING OR YOU CAN DO TESTS ON BRAINS FROM  
4 SMOKERS WHO HAVE DIED AND NON-SMOKERS WHO HAVE DIED  
5 AND YOU CAN MEASURE NICOTINE RECEPTORS AND IT IS  
6 QUITE A DIFFERENT PATTERN AND NUMBER.

7 Q. SO SMOKERS GET MORE NICOTINE  
8 RECEPTORS?

9 A. GET MORE NICOTINE RECEPTORS, THEY  
10 DON'T FUNCTION THE SAME WAY. BUT THE STRUCTURE OF  
11 THEIR BRAIN IS DIFFERENT THAN A SMOKER, DIFFERENT  
12 THAN A NON-SMOKER.

13 Q. LET ME STOP THERE FOR A SECOND,  
14 PLEASE.

15 THE FUNCTION OF A SMOKER'S BRAIN,  
16 AS FAR AS NICOTINE RECEPTORS, IS DIFFERENT THAN A  
17 NON-SMOKER'S, IS THIS --

18 A. THE FUNCTION AND THE STRUCTURE, THE  
19 ACTUAL STRUCTURE HAS CHANGED AS WELL.

20 Q. OKAY, THE STRUCTURE?

21 A. BOTH.

22 Q. GETS CHANGED BECAUSE THE SMOKER HAS  
23 HAD THIS NICOTINE OR IT WAS A DIFFERENT BRAIN  
24 BEFORE THE SMOKER EVER HAD THE NICOTINE?

25 A. IT IS FROM NICOTINE. BECAUSE IN  
26 ANIMALS, ONE CAN GIVE NICOTINE TO ANIMALS AND  
27 INDUCE THE SAME CHANGES THAT ARE SEEN IN SMOKERS'  
28 BRAINS. SO THIS IS SOMETHING THAT'S AN EFFECT OF

1921

1 NICOTINE WITH LONG-TERM EXPOSURE.

2 Q. BEFORE YOU GO -- SORRY, BUT SO I  
3 DON'T FORGET TO COME BACK, WHAT ABOUT, LET'S  
4 FORGET -- LET'S NOT FORGET, BUT LET'S NOT DISCUSS  
5 NON-SMOKERS. LET'S JUST STICK WITH THE SMOKERS WHO  
6 HAVE DIFFERENT NICOTINE RECEPTORS.

7 WHAT ABOUT WITHIN THE GROUP OF

8 SMOKERS, DOES THAT VARY AS THE AMOUNT OF SMOKING  
9 VARIES?  
10 A. WELL, CERTAINLY IN ANIMALS IT DOES.  
11 WE DON'T HAVE ENOUGH DATA IN HUMANS. WE DO KNOW  
12 THAT HUMANS' BRAINS ARE QUITE DIFFERENT IN TERMS OF  
13 THE NUMBERS OF RECEPTORS IN GENERAL.  
14 SOME PEOPLE HAVE POOR RECEPTORS.  
15 AND THERE ARE ALSO DIFFERENT TYPES.  
16 IT IS TOO COMPLICATED TO EXPLAIN. BUT THERE ARE  
17 LOTS OF DIFFERENT TYPES OF NICOTINE RECEPTORS.  
18 AND THE PATTERN VARIES FROM PERSON  
19 TO PERSON.  
20 AND WE THINK THIS IS IMPORTANT  
21 BECAUSE OF, OF VERY STRONG EVIDENCE THAT THERE ARE  
22 GENETIC DIFFERENCES IN HOW LIKELY A PERSON IS TO  
23 BECOME A SMOKER, TO BECOME A HIGHLY ADDICTED  
24 SMOKER, TO HAVE PROBLEMS QUITTING.  
25 THERE ARE A LOT OF GENETICS  
26 INVOLVED WITH THAT.  
27 THAT'S WHY SOME PEOPLE STOP  
28 SMOKING, AND ALMOST NO MATTER WHAT THEY DO, THEY

1922

1 CAN'T STOP.  
2 OTHER PEOPLE ARE SMOKERS AND THEY  
3 CAN JUST STOP AND NEVER HAVE A PROBLEM.  
4 UNFORTUNATELY, THERE ARE NOT MANY  
5 OF THE LATTER. MOST PEOPLE DO HAVE TROUBLE  
6 QUITTING. BUT WE KNOW THERE ARE BIG DIFFERENCES IN  
7 BRAINS AND SUSCEPTIBILITY TO NICOTINE EFFECTS.  
8 Q. SO WHEN, JUST AS AN EXAMPLE, IF I  
9 LINED UP 4 PEOPLE OR 400 PEOPLE OR 4 MILLION  
10 PEOPLE, IT DOESN'T MATTER UP THERE, AND SAID, WELL,  
11 ONE STOPPED COLD TURKEY, JUST PUT THEM DOWN NEVER  
12 HAD ANOTHER CIGARETTE, EVER, SO THAT MEANS THE  
13 OTHER THREE SHOULD BE ABLE TO STOP. IS THAT RIGHT  
14 OR WRONG?  
15 A. IT'S ABSOLUTELY WRONG.  
16 AND THIS IS ACTUALLY -- IT'S TRUE  
17 FOR NICOTINE. BUT IF YOU LOOK AT OTHER DRUGS OF  
18 ABUSE, IT'S THE SAME THING. THERE ARE SOME HEROIN  
19 ADDICTS WHO JUST DECIDE THEY NEED TO STOP AND THEY  
20 JUST STOP, THAT'S IT.  
21 SAME THING FOR ALCOHOLICS, NOT  
22 MANY.  
23 WITH SMOKERS, IT'S THE SAME THING.  
24 MANY SMOKERS SAY THEY WANT TO STOP. A FEW STOP AND  
25 HAVE NO PROBLEMS. MOST HAVE DIFFICULTY. THEY CAN  
26 EVENTUALLY QUIT, BUT IT TAKES FOUR OR FIVE  
27 ATTEMPTS, ON AVERAGE. AND SOME CAN NEVER QUIT.  
28 SOME SEEM TO TRY AND TRY AND TRY AND NEVER SEEM TO

1923

1 MAKE IT.  
2 Q. OF THE FOUR PEOPLE I HAD UP THERE,  
3 LET'S TALK ABOUT THE REMAINING THREE, ONE JUST QUIT  
4 COLD TURKEY AND THAT PERSON IS GONE.  
5 NOW, OF THE OTHER THREE, ONE OF  
6 THEM QUILTS, I DON'T KNOW, RELATIVELY EASILY, SMOKES  
7 FOR, DOESN'T SMOKE THAT MUCH TO START WITH, SMOKES  
8 FIVE CIGARETTES A DAY OR MAYBE A PACK A WEEK OR TWO  
9 PACKS A WEEK, SOMETHING LIKE THAT, AND THE PERSON,  
10 AFTER ONE ATTEMPT OR TWO ATTEMPTS STOPS AND STAYS

11 STOPPED.  
12 SO USING THAT PERSON AS AN EXAMPLE  
13 NOW, I AM LOOKING AT THE OTHER TWO WHO CAN'T DO  
14 THAT, BECAUSE -- WELL, CAN'T THEY DO THAT OR IS IT  
15 JUST THAT THEY HAVEN'T TRIED HARD ENOUGH?  
16 A. NO. THEY ARE PROBABLY GOING TO BE  
17 DIFFERENT.  
18 THERE IS A SPECTRUM OF ADDICTION --  
19 THIS IS SOMETHING THAT I HAVE STUDIED AS WELL, THAT  
20 THERE ARE PEOPLE, MAYBE 15 PERCENT OF THE  
21 POPULATION HAS SMOKED FIVE OR FEWER CIGARETTES AND  
22 SOMETIMES DON'T EVEN SMOKE EVERY DAY. AND THOSE  
23 ARE PEOPLE WHO ARE NOT HIGHLY ADDICTIVE OR NOT  
24 ADDICTED AT ALL. SO THESE PEOPLE MAY TRY TO QUIT,  
25 CAN QUIT WITHOUT MUCH PROBLEM, USUALLY.  
26 THERE IS SOME EXCEPTIONS, BUT  
27 USUALLY WHEN YOU GET TO PEOPLE WHO ARE SMOKING TEN  
28 OR MORE CIGARETTES PER DAY, MOST ARE ADDICTED AND

1924

1 MOST HAVE DIFFICULTY QUITTING.  
2 Q. LET'S -- YOU SAY, OF PEOPLE WHO  
3 SMOKED TEN OR MORE A DAY, MOST ARE ADDICTED AND  
4 HAVE TROUBLE QUITTING.  
5 WHAT IF WE BUMP UP THE NUMBER TO 20  
6 A DAY, WHICH IS A PACK, OR 40 A DAY, WHICH IS TWO  
7 PACKS, WHAT DO YOU HAVE TO SAY ABOUT THE PERCENTAGE  
8 OF THOSE PEOPLE BEING ADDICTED?  
9 A. WELL, THERE'S ROUGH CORRELATIONS.  
10 IT IS NOT PERFECT. THERE IS A ROUGH CORRELATION  
11 BETWEEN HOW MUCH YOU SMOKE AND HOW ADDICTED YOU  
12 ARE.  
13 SO WHEN YOU GET TO PEOPLE SMOKING  
14 20 OR MORE CIGARETTES PER DAY, THOSE ARE GENERALLY  
15 HIGHLY ADDICTED SMOKERS. AND THEY GENERALLY HAVE  
16 TROUBLE QUITTING.  
17 Q. SO I INTERRUPTED YOU AND I  
18 DIDN'T -- I DON'T KNOW IF YOU WERE DONE OR ALMOST  
19 DONE WITH WHERE YOU WERE.  
20 A. NO.  
21 I HAVE TALKED ABOUT ONE ASPECT.  
22 SMOKING FOR SOME OF THE WHAT ARE  
23 CALLED PRIMARY EFFECTS OF NICOTINE, SO THESE ARE  
24 THE THINGS THAT NICOTINE MIGHT DO ON HORMONES.  
25 WHEN THE BRAIN BECOMES TOLERANT,  
26 THEN IT CHANGES AND GETS TO THE STATE THAT IT NEEDS  
27 NICOTINE TO FUNCTION NORMALLY, NOT SUPER NORMALLY  
28 BUT JUST NORMALLY.

1925

1 AND THEN WHEN A PERSON DOESN'T  
2 SMOKE CIGARETTES, THEN THERE IS A SUBNORMAL RELEASE  
3 OF HORMONES, SO IT IS NOT THE NORMAL A.C.H.  
4 FUNCTION ANY MORE. NOW THERE IS A DEFICIENT  
5 RELEASE AND WHAT ONE SEES ARE WITHDRAWAL SYMPTOMS  
6 THAT ARE THE OPPOSITE OF THE PRIMARY SYMPTOMS.  
7 SO INSTEAD OF FEELING GOOD, SMOKERS  
8 DON'T FEEL GOOD, THEY DON'T FEEL RIGHT, THEY FEEL  
9 DEPRESSED, THEY FEEL ANXIOUS, THEY ARE OFTEN  
10 IRRITABLE, OFTEN HAVE TROUBLE GETTING ALONG WITH  
11 FAMILY AND CO-WORKERS, SMOKERS, WHEN THEY CAN'T  
12 SMOKE, OFTEN HAVE TROUBLE CONCENTRATING ON THEIR  
13 JOBS AND DOING THEIR WORK.

14                   THEY OFTEN HAVE TROUBLE DEALING  
15 WITH STRESS. THEY FEEL MORE STRESSED, FEEL THEY  
16 CAN'T COPE WITH STRESS AS WELL.  
17                   HUNGER, WEIGHT GAIN IS COMMON.  
18                   SO THOSE ARE WITHDRAWAL SYMPTOMS OR  
19 SYMPTOMS.  
20                   SO THAT'S THE OPPOSITE.  
21                   AND SMOKERS SMOKE FOR BOTH THOSE  
22 THINGS. THEY SMOKE BECAUSE CIGARETTES DO SOME  
23 THINGS THAT THEY LIKE AND THEY ALSO SMOKE BECAUSE  
24 WHEN THEY ARE NOT SMOKING THEY FEEL BAD, AND IF  
25 THEY FEEL BAD, IMMEDIATELY THEY HAVE A CIGARETTE,  
26 THEY FEEL BETTER, BECAUSE THEY ARE RELIEVING THE  
27 WITHDRAWAL SYMPTOMS.  
28                   SO IT'S A COMBINATION OF BOTH THOSE

1926

1 THINGS THAT PLAY A ROLE IN SMOKING.  
2                   NOW, ONE THING WE HAVE LEARNED  
3 ABOUT THE WITHDRAWAL SYMPTOMS IN RECENT YEARS IS  
4 SOME OF THEM CAN PERSIST FOR MONTHS OR MAYBE EVEN  
5 YEARS. ESPECIALLY THE ALTERED MOOD. MANY SMOKERS  
6 SAY WHEN THEY QUIT, AND THIS IS TRUE FOR EVERY DRUG  
7 ABUSER ALSO, I JUST DON'T FEEL RIGHT, THINGS ARE  
8 NOT FUN TO ME ANY MORE, DON'T HAVE NORMAL ENERGY, I  
9 HAVE MORE STRESS THAN NORMAL, I JUST DON'T FEEL  
10 NORMAL, I AM A BIT DEPRESSED, THEY HAVE A  
11 CIGARETTE. ALL OF THE SUDDEN, IT NORMALIZES.  
12                   THAT SYMPTOM CAN LAST FOR MONTHS.  
13 AND ONE THING WHICH WE FOUND WITH EXPOSURES, WHICH  
14 IS VERY DISCOURAGING FOR THE SMOKERS AND FOR US  
15 TRYING TO QUIT SMOKING -- TO HELP SMOKERS, IS THAT  
16 THEY CAN QUIT SOMETIMES FOR WEEKS OR EVEN MONTHS  
17 AND THEN RELAPSE.  
18                   IF YOU LOOK AT CURVES OF SMOKERS  
19 WHO TRIED TO QUIT, SAY THEY HAVE SUCCEEDED FOR A  
20 WEEK. WELL, BY THREE MONTHS, 60 PERCENT OF THEM  
21 WILL HAVE STARTED SMOKING AGAIN, EVEN IF THEY  
22 MANAGED TO NOT SMOKE FOR SEVERAL DAYS.  
23                   Q.     HANG ON A SECOND.  
24                   PLEASE, I AM NOT TRYING TO BE RUDE,  
25 BUT I AM TRYING TO GET THIS IN SOME BITE-SIZED  
26 CHUNKS HERE AND TO MAKE A COUPLE POINTS.  
27                   WHAT IF I SAID TO YOU THAT IF  
28 SOMEONE STOPPED SMOKING FOR AS LITTLE AS A COUPLE

1927

1 DAYS, AND I DON'T KNOW WHETHER IT IS TWO DAYS OR  
2 THREE DAYS, BUT JUST FOR THE HECK OF IT, LET'S MAKE  
3 IT SEVEN DAYS, ALL OF THE NICOTINE IN A PERSON'S  
4 BODY IS GONE, AND BECAUSE ALL THE NICOTINE IN A  
5 PERSON'S BODY HAD GONE, IT IS AS IF THAT PERSON  
6 NEVER SMOKED, AND THE NEXT TIME THAT PERSON PICKS  
7 UP A CIGARETTE, DOESN'T MATTER IF HE EVER SMOKED  
8 BEFORE OR SHE EVER SMOKED BEFORE, IT'S FREE WILL,  
9 IT IS A BRAND NEW BALL GAME. WE ARE STARTING ALL  
10 OVER.  
11                   DOES THAT SOUND RIGHT TO YOU?  
12                   A.     IT IS ABSOLUTELY WRONG.  
13                   FIRST, LET ME JUST SAY THAT  
14 NICOTINE DOES SOME THINGS TO THE BRAIN THAT LAST A  
15 LONG TIME. WE DON'T UNDERSTAND THEM.  
16                   THERE ARE STUDIES IN RATS WHERE IF

17 YOU GIVE A RAT NICOTINE, IT HAS A CERTAIN EFFECT,  
18 THEY BECOME TOLERANT TO IT. SO AFTER AWHILE THE  
19 BODY GETS USED TO IT.  
20 YOU CAN THEN TAKE NICOTINE AWAY  
21 FROM THAT RAT FOR A YEAR, GIVE THEM NICOTINE A YEAR  
22 LATER AND THE RAT IS STILL TOLERANT TO SOME  
23 EFFECTS.  
24 SO THEY ARE VERY LONG-STANDING  
25 CHANGES. THE BRAIN OF A SMOKER IS NEVER FULLY THE  
26 SAME AS A NEVER SMOKER.  
27 BUT A NEVER SMOKER STARTS SMOKING,  
28 IN THE BEGINNING, THEY GET SICK OFTEN, LIKE

1928

1 NAUSEATED, THEY DON'T FEEL GOOD. IT TAKES AWHILE  
2 TO BE ABLE TO TOLERATE NICOTINE.  
3 A SMOKER WHO STARTS SMOKING AGAIN  
4 AFTER EVEN SEVERAL YEARS OF QUITTING, CAN OFTEN  
5 START AND WITHIN A FEW DAYS, CAN BE BACK UP TO A  
6 PACK A DAY OR MORE.  
7 SO IT'S CLEARLY DIFFERENT.  
8 THE WITHDRAWAL THAT PEOPLE HAVE OR  
9 THE URGE FOR CIGARETTES LASTS FOR A VERY LONG TIME.  
10 PART OF IT IS WHAT'S CALLED CONDITION OR TRIGGER.  
11 FOR EXAMPLE, IF YOU HAVE BEEN  
12 SMOKING FOR 20 YEARS AND YOU KNOW WHEN YOU GET  
13 STRESSED, A CIGARETTE HELPS YOU FIGHT STRESS, WHEN  
14 YOU GET DEPRESSED, A CIGARETTE MAKES YOU FEEL  
15 BETTER.  
16 EVEN SIX MONTHS LATER AFTER YOU  
17 QUIT, THE FIRST TIME YOU GET STRESSED YOU WILL SAY,  
18 BOY, I WISH I HAD A CIGARETTE, I KNOW I WOULD FEEL  
19 BETTER.  
20 THAT DOESN'T GO AWAY IN TWO WEEKS.  
21 THERE IS NOTHING YOU CAN DO WITH THE PRESENT  
22 NICOTINE IN YOUR BODY. IT HAS TO DO WITH -- THE  
23 BRAIN IN THE SMOKER HAS DIFFERENT MEMORIES,  
24 DIFFERENT CONNECTIONS AND THEY ARE ALWAYS  
25 VULNERABLE TO RELAPSE, BUT ESPECIALLY THE FIRST  
26 YEAR.  
27 SO TO GO BACK TO WHAT I WAS SAYING  
28 BEFORE, EVEN IF EVERYONE HAS QUIT FOR A WEEK, BY

1929

1 SIX MONTHS ONLY 25 PERCENT HAVE QUIT. SO 75  
2 PERCENT HAVE RELAPSED AGAIN. AND BY A YEAR YOU ARE  
3 PROBABLY DOWN TO 15 PERCENT WHO HAVE REALLY QUIT.  
4 SO IT DOESN'T MATTER IF NICOTINE IS  
5 PRESENT OR NOT. YOU ARE AT RISK TO RELAPSE FOR AS  
6 LONG AS A YEAR AFTER QUITTING.  
7 Q. THANKS. YOU USED A TERM SEVERAL  
8 TIMES, I FORGET WHAT IT IS, BUT I WANT TO SPEND A  
9 MINUTE ON IT, THE RAT THAT USED TO HAVE THE  
10 NICOTINE AND HASN'T HAD THE NICOTINE FOR A YEAR,  
11 AND THEN AFTER THE YEAR, GETS THE NICOTINE, WHAT  
12 ABOUT THAT RAT, THE RAT --  
13 A. WELL, WHAT I SAID IS, THERE ARE  
14 CERTAIN EFFECTS THAT DEVELOP IN A RAT, CERTAIN  
15 EFFECTS ON MOVEMENT AND BEHAVIOR. AND IF YOU GIVE  
16 THEM NICOTINE SEVERAL TIMES, THE RAT GETS USED TO  
17 IT.  
18 THEY BECOME WHAT WE CALL TOLERANT  
19 TO IT.



20 Q. TOLERANT?  
21 A. AND SO THAT RAT IS DIFFERENT  
22 BECAUSE IT HAS NICOTINE.  
23 Q. SO THAT'S THE WORDS I WAS LOOKING  
24 FOR, TOLERANT.  
25 DEFINE IT, TOLERANT.  
26 A. TOLERANCE MEANS THAT, AFTER YOU  
27 HAVE GOT A DRUG, AFTER YOU HAVE BEEN EXPOSED TO A  
28 DRUG, THE NEXT TIME YOU GET IT, YOU HAVE LESS OF AN

1930

1 AFFECT THAN YOU HAD BEFORE.  
2 A GOOD EXAMPLE OF THIS THAT MOST  
3 PEOPLE KNOW IS COFFEE AND CAFFEINE. IF YOU DRINK  
4 COFFEE ALL DAY LONG, YOUR BRAIN GETS TOLERANT TO IT  
5 AND YOU CAN SLEEP AT NIGHT, YOU CAN DO THIS EVERY  
6 DAY.  
7 BUT IF YOU ARE SOMEONE WHO DOESN'T  
8 DRINK COFFEE AND YOU HAVE A CUP OF COFFEE AT NIGHT,  
9 THEN YOU CAN'T SLEEP THAT NIGHT BECAUSE YOUR BRAIN  
10 IS NOT TOLERANT TO IT OR IF YOU ARE A PERSON WHO  
11 ONLY HAS COFFEE IN THE MORNING AND THEN YOU HAVE A  
12 CUP OF COFFEE BEFORE BED, YOU CAN'T SLEEP.  
13 BUT SOMEONE ELSE WHO ALWAYS HAS A  
14 CUP OF COFFEE BEFORE BED CAN SLEEP JUST FINE. IT  
15 IS BECAUSE THE BODY ADAPTS AFTER EXPOSING IT. THE  
16 SAME THING HAPPENS WITH NICOTINE.  
17 Q. LET'S GO BACK TO THE RAT.  
18 AFTER ONE WHOLE YEAR OF BEING AWAY  
19 FROM NICOTINE -- FORGET TWO DAYS OUT OF THE BODY,  
20 THREE DAYS OUT OF THE BODY, SEVEN DAYS OUT OF THE  
21 BODY, WE ARE TALKING 365 DAYS OUT OF THE BODY, THIS  
22 RAT IS STILL TOLERANT TO NICOTINE?  
23 A. TO SOME EFFECT, YES.  
24 Q. I WANT TO TALK ABOUT YOU AGAIN NOW,  
25 A BIT.  
26 YOU HAVE TOLD US YOU ARE A MEDICAL  
27 DOCTOR, YOU ARE AN INTERNIST, YOU ARE A  
28 CARDIOLOGIST, BUT EARLIER ON, YOU TOLD US YOU WERE

1931

1 A PROFESSOR OF WHAT, PHARMACOLOGY?  
2 A. NOW, WELL, INTERNAL MEDICINE, AND  
3 IT IS PSYCHIATRY AND BIOPHARMACEUTICAL SCIENCES.  
4 Q. BIOPHARMACEUTICAL SCIENCES?  
5 A. YES.  
6 Q. PLEASE TALK ABOUT, LET'S START OFF  
7 WITH WHAT IS THAT, BIOPHARMACEUTICAL SCIENCES?  
8 A. WELL, THIS IS A DEPARTMENT THAT'S  
9 PART OF THE SCHOOL OF PHARMACY AT U.C.S.F., WHICH  
10 IS, IS VERY MUCH INVOLVED IN DRUG RELATED RESEARCH  
11 AS WELL.  
12 BIOPHARMACEUTICAL SCIENCES IS  
13 REALLY THE SCIENCE OF DRUG DEVELOPMENT. AND THE  
14 SCHOOL OF PHARMACY, THERE ARE DOCTORAL PROGRAMS, A  
15 LOT OF RESEARCHERS STUDYING THE DEVELOPMENT OF NEW  
16 DRUGS, HOW DRUGS WORK, THE PROPER WAY TO DOSE  
17 DRUGS, ET CETERA.  
18 AND BECAUSE I DO A LOT OF WORK  
19 WHICH DEALS WITH DRUG DEVELOPMENT ISSUES, INCLUDING  
20 NICOTINE, BECAUSE I WAS INVOLVED IN THE DEVELOPMENT  
21 OF A LOT OF THE DRUGS THAT ARE USED TO HELP SMOKERS  
22 TO QUIT, I AM INVOLVED IN TEACHING IT AND I AM

23 ACTUALLY VICE-CHAIRMAN OF THAT DEPARTMENT IN CHARGE  
24 OF THE CLINICAL PHARMACOLOGY, THE CLINICAL RESEARCH  
25 PART OF IT.  
26 Q. YOU SAID PSYCHIATRY TOO. ARE YOU A  
27 PSYCHIATRIST?  
28 A. NO, I AM NOT A PSYCHIATRIST. MY

1932

1 APPOINTMENT IN PSYCHIATRY IS BECAUSE MOST ADDICTION  
2 MEDICINE IS HOUSED IN DEPARTMENTS OF PSYCHIATRY.  
3 AND BECAUSE I DO WORK IN ADDICTION MEDICINE AND I  
4 TEACH A LOT IN THAT AREA, I HAVE AN APPOINTMENT IN  
5 THAT DEPARTMENT.  
6 Q. SO ALTHOUGH YOU ARE NOT A  
7 PSYCHIATRIST, YOU ARE A PROFESSOR OVER IN THE  
8 PSYCHIATRY DEPARTMENT?  
9 A. YES.  
10 Q. OKAY. IS HEROIN MORE ADDICTIVE  
11 THAN NICOTINE?  
12 A. WELL, MOST PEOPLE WOULD THINK THAT.  
13 THE ANALYSIS THAT WE CAME UP WITH IN OUR SURGEON  
14 GENERAL'S REPORT WAS THAT IT IS NOT. IN FACT,  
15 NICOTINE IS SIMILAR TO HEROIN AND COCAINE. THAT  
16 WAS ONE OF THE CONCLUSIONS OF THE A.D.A. REPORT, IN  
17 TERMS OF THE ADDICTION PROCESSES, AND THE STRENGTH  
18 OF THE ADDICTION, THAT, IN FACT, NICOTINE WAS  
19 SIMILAR TO HEROIN AND COCAINE.  
20 NOW, I SHOULD EXPLAIN THAT, BECAUSE  
21 MOST PEOPLE THINK THAT DOESN'T MAKE SENSE, IF YOU  
22 ARE THINKING ABOUT THE INTOXICATION. BECAUSE  
23 PEOPLE USE HEROIN AND COCAINE, THEY GET  
24 INTOXICATED. THEY CAN'T FUNCTION, THEY HAVE SEVERE  
25 WITHDRAWAL SYMPTOMS.  
26 NICOTINE DOESN'T WORK THE SAME WAY.  
27 WITH NICOTINE, YOU CAN FUNCTION, YOU CAN WORK, AND  
28 THE WITHDRAWAL SYMPTOMS, WHILE THEY CAN BE VERY

1933

1 DISRUPTIVE SO PEOPLE CAN'T FUNCTION FORMALLY, THEY  
2 ARE NOT LIFE-THREATENING. YOU DON'T HAVE  
3 CONVULSIONS LIKE YOU DO WITH ALCOHOL WITHDRAWAL,  
4 FOR EXAMPLE.  
5 BUT WHAT'S SIMILAR ABOUT IT IS THAT  
6 IF YOU LOOK AT QUITTING, HOW HARD IS IT TO QUIT.  
7 THE QUIT RATES ARE VERY COMPARABLE FOR THOSE THREE  
8 DRUGS.  
9 IF YOU DO RESEARCH, THIS HAS BEEN  
10 DONE WITH PEOPLE WHO SMOKE CIGARETTES AND USE DRUGS  
11 AND ALCOHOL, AND YOU ASK THEM WHICH DRUG WOULD BE  
12 THE HARDEST ONE FOR YOU TO GIVE UP, MORE THAN  
13 HALF -- THESE ARE HEROIN ADDICTS OR ALCOHOLICS,  
14 MORE THAN HALF SAY SMOKING WOULD BE THE HARDEST  
15 THING TO GIVE UP, HARDER THAN THE HEROIN, HARDER  
16 THAN ALCOHOL.  
17 IF YOU LOOK AT THE NUMBER OF PEOPLE  
18 WHO USE DIFFERENT DRUGS AND ARE ADDICTED TO IT, FOR  
19 CIGARETTES, PROBABLY 85 PERCENT OF SMOKERS HAVE  
20 SOME AMOUNT OF ADDICTION. SMOKE EVERY DAY AND HAVE  
21 SOME LEVEL OF ADDICTION.  
22 FOR ALCOHOL, IT'S ONLY 20 PERCENT  
23 OF MEN AND 4 PERCENT OF WOMEN HAVE AN ALCOHOL ABUSE  
24 PROBLEM. THE OTHER ONES JUST DRINK, BUT IF THEY  
25 CAN'T DRINK ONE DAY, IT'S NOT A PROBLEM, THEY HAVE

26 NO ABUSIVE PROBLEMS, NO ADDICTION PROBLEM.  
27 HEROIN AND COCAINE, THE DATA AREN'T  
28 QUITE AS CLEAR, BUT THERE IS EVIDENCE THAT AS MANY

1934

1 AS 50 PERCENT OF PEOPLE WHO USE HEROIN USE IT ONLY  
2 OCCASIONALLY. SO THEY GO TO PARTIES OR THEY CHIP  
3 AND THE SAME IS TRUE FOR COCAINE.  
4 SO FOR THE PERCENTAGE OF USERS, FOR  
5 THESE VARIOUS DRUGS, THE NUMBER WHO USE NICOTINE  
6 EVERY DAY, EVERY SINGLE DAY, IS MUCH HIGHER THAN  
7 ANY OTHER DRUG.  
8 SO FROM THAT PERSPECTIVE, NICOTINE  
9 EVEN LOOKS MORE ADDICTIVE.  
10 Q. TWO POINTS, ONE OF A SMALL SIDE  
11 POINT WHICH MAY COME UP LATER.  
12 YOU USED THE WORD "CHIP."  
13 I KNOW WHAT IT MEANS BUT WHAT DOES  
14 IT MEAN THE WAY YOU USED IT IN THE WAY YOU USED IT?  
15 A. THAT'S A WORD WHICH HAS BEEN USED  
16 FOR HEROIN AND ACTUALLY HAS BEEN USED FOR  
17 CIGARETTES TOO. SOMEONE WHO OCCASIONALLY USES THE  
18 DRUG, IS NOT ADDICTED TO, IS NOT DEPENDENT ON, BUT  
19 OCCASIONALLY USES IT.  
20 AND WE USE THAT FOR PEOPLE WHO  
21 SMOKE FIVE OR FEWER CIGARETTES PER DAY, WHO DON'T  
22 SMOKE EVERY SINGLE DAY.  
23 SO IT'S CALLED CHIPPERS, YOU KNOW,  
24 A JARGON. BUT IT REALLY DEALS WITH PEOPLE WHO  
25 OCCASIONALLY USE DRUGS AND DON'T SEEM TO BE  
26 ADDICTED TO THE DRUG.  
27 Q. AND THE SECOND POINT I STOPPED YOU  
28 FOR IS THIS, WITH ALCOHOL, THE VAST MAJORITY OF

1935

1 PEOPLE WHO USE ALCOHOL HAVE NO ADDICTION PROBLEM  
2 WHATSOEVER?  
3 A. CORRECT.  
4 Q. AND WHAT DID YOU SAY THAT IT WAS,  
5 THAT IT WAS 80 PERCENT OF MEN AND 95 PERCENT OF  
6 WOMEN, SOMETHING LIKE THAT?  
7 A. YES.  
8 Q. HAVE NO ADDICTION PROBLEM  
9 WHATSOEVER WITH ALCOHOL?  
10 A. YES.  
11 Q. WITH NICOTINE, IS IT BASICALLY  
12 FLIPPED OVER, SO THAT, DID YOU SAY 85 PERCENT OF  
13 PEOPLE HAVE SOME ADDICTION PROBLEM WITH IT?  
14 A. YES.  
15 Q. SO WITH ALCOHOL, 20 DO HAVE  
16 ADDICTION PROBLEMS -- LET'S JUST TALK MEN, 20 DO,  
17 80 DON'T, WITH NICOTINE?  
18 A. RIGHT.  
19 Q. WITH NICOTINE, 15 DON'T AND 85 DO?  
20 A. YES.  
21 Q. HAVE A PROBLEM OF SOME SORT OF  
22 ADDICTION?  
23 A. YES.  
24 Q. OKAY, THANK YOU.  
25 THE COURT: AT THIS POINT --  
26 MR. PIUZE: YES.  
27 THE COURT: ALL RIGHT, IT'S QUARTER TO  
28 11, WE WILL TAKE A BREAK UNTIL 11 O'CLOCK.

1936

1 AND MS. GARRETT, I DON'T KNOW WHY I  
2 DIDN'T NOTICE THIS BEFORE, I SHOULD HAVE, BUT YOU  
3 ARE IN A POSITION WHERE IT IS JUST VERY DIFFICULT  
4 FOR YOU TO SEE. AND WHEN YOU COME BACK, WE ARE  
5 GOING TO HAVE YOUR SEAT MOVED FROM WHERE YOU ARE  
6 RIGHT UP HERE OVER HERE TO THE SIDE, SO THAT I  
7 THINK YOU WILL BE ABLE TO SEE THIS MUCH BETTER.  
8 OKAY.

9  
10 (THE FOLLOWING PROCEEDINGS  
11 WERE HELD IN OPEN COURT IN  
12 THE PRESENCE OF THE JURY.)  
13  
14

15 NEAL BENOWITZ,  
16 CALLED AS A WITNESS BY THE PLAINTIFF, HAVING BEEN  
17 PREVIOUSLY DULY SWORN, RESUMED THE WITNESS STAND  
18 AND TESTIFIED FURTHER AS FOLLOWS:

19 THE COURT: SIR, YOU MAY BE SEATED.

20 MR. PIUZE: THANK YOU.

21 THE COURT: MR. PIUZE.

22

23 DIRECT EXAMINATION (RESUMED)

24

25 BY MR. PIUZE:

26 Q. I WANT TO SWITCH SUBJECTS SOMEWHAT.

27 BUT THIS WILL ENTAIL GOING BACKWARDS A LITTLE.

28 REMEMBER, YOU TOLD THE JURY ABOUT,

1937

1 YOU WOULD FIND A SMOKER WHO TYPICALLY HAD, I FORGET  
2 WHAT YOU SAID, MAYBE 30 CIGARETTES A DAY, THAT WAS  
3 THE USUAL LEVEL, YOU CUT THE SMOKER DOWN TO 15 A  
4 DAY, AND ULTIMATELY BOTTOM LINE WAS YOU FOUND OUT  
5 THE SMOKER DID SOMETHING SOMEHOW WITH THE  
6 CIGARETTES SO THE SMOKER WOUND UP GETTING THE SAME  
7 AMOUNT OF NICOTINE OUT OF THE 15 CIGARETTES THAT HE  
8 OR SHE HAD GOTTEN OUT OF 30. REMEMBER THAT?

9 A. YES.

10 Q. ARE YOU FAMILIAR WITH THE TERM  
11 "COMPENSATION"?

12 A. YES.

13 Q. DOES THE TERM "COMPENSATION" FIT  
14 WITH, WITH OR FIT INTO AN EXPLANATION OF HOW THAT  
15 CAN BE?

16 A. YES.

17 Q. HOW? WHY, PLEASE.

18 A. WELL, TO GO BACK TO THE STORY OF  
19 PEOPLE SMOKING FOR NICOTINE, PEOPLE TEND TO SMOKE  
20 CIGARETTES IN THE MORNING, HAVE A BIGGER EFFECT IN  
21 THE MORNING, BECOME TOLERANT TO THE EFFECTS  
22 THROUGHOUT THE DAY, END UP SMOKING CIGARETTES  
23 BECAUSE THEY FEEL DISCOMFORT AND WITHDRAWAL AND END  
24 UP SMOKING CIGARETTES TO DEAL WITH, WITH MOOD  
25 DISTURBANCES, WITH STRESS, WITH NEEDING TO BE  
26 STIMULATED OR RELAXED.

27 AND WHAT IS FOUND IS THAT PEOPLE  
28 TEND TO TAKE IN ABOUT THE SAME AMOUNT OF NICOTINE

1938

1 DAY AFTER DAY.

2 SO PEOPLE'S BODIES SEEM TO NEED A  
3 CERTAIN AMOUNT OF NICOTINE. IT VARIES FROM PERSON  
4 TO PERSON. BUT WE THINK IT HAS TO DO WITH DEALING  
5 FOR -- SMOKING FOR CERTAIN SITUATIONS AND THEN  
6 TOLERANCE AND THINGS LIKE THAT.  
7 RESEARCH HAS BEEN DONE SHOWING THAT  
8 IF YOU TRY TO CHANGE THE AMOUNT OF NICOTINE THAT'S  
9 AVAILABLE TO A SMOKER, THEY WILL CHANGE THEIR  
10 BEHAVIOR TO TRY TO BRING IT BACK TO THEIR USUAL  
11 LEVEL.  
12 SO THE IDEA WITH THE CIGARETTE  
13 PRODUCTION STUDY WAS THAT, SAY, IF PEOPLE NORMALLY  
14 TAKE IN, SAY, 30 MILLIGRAMS OF NICOTINE A DAY,  
15 WHICH IS WHAT PEOPLE SMOKING 30 CIGARETTES WOULD  
16 TAKE, WE COULD CUT THEM DOWN TO 15 CIGARETTES AND  
17 THEY WOULD BE TAKING IN ALMOST THE SAME AMOUNT OF  
18 NICOTINE PER DAY. THEIR BODY SEEMS TO NEED A  
19 CERTAIN AMOUNT.  
20 NOW, THEY DO IT BY TAKING TWICE AS  
21 MUCH PUFFS FROM EACH CIGARETTE OR BIGGER PUFFS AND  
22 MORE PUFFS.  
23 BUT BECAUSE THERE'S A LOT OF  
24 FLEXIBILITY AND WHAT YOU CAN GET FROM A CIGARETTE,  
25 YOU CAN REALLY ADJUST QUITE A BIT.  
26 SO, SAY, THE NORMAL CIGARETTE GIVES  
27 A SMOKER ONE MILLIGRAM OF NICOTINE, WE FOUND THAT  
28 PEOPLE WHO CUT DOWN TO FIVE CIGARETTES WERE GETTING

1939

1 THREE MILLIGRAMS PER CIGARETTE. SO THREE TIMES AS  
2 MUCH BY TAKING MUCH BIGGER PUFFS AND MORE PUFFS PER  
3 CIGARETTE.  
4 THEY COULDN'T QUITE COMPENSATE.  
5 FULL COMPENSATION MEANS THAT NO MATTER WHAT YOU  
6 GET, NO MATTER HOW MANY CIGARETTES, YOU HAVE THE  
7 SAME AMOUNT OF NICOTINE.  
8 WELL, HERE, THEY COULDN'T FULLY  
9 COMPENSATE BECAUSE YOU COULDN'T GO FROM 30 TO 5 AND  
10 GET ENOUGH NICOTINE, NO MATTER WHAT YOU DO.  
11 WE FOUND PRETTY SUBSTANTIAL  
12 COMPENSATION SO THAT 10 CIGARETTES PER DAY PEOPLE  
13 HAD ABOUT 80 PERCENT OF WHAT THEY HAD FROM 30.  
14 Q. WHEN DID YOU FIND THIS OUT?  
15 A. I THINK WE PUBLISHED THIS WORK IN  
16 THE MID-1980'S.  
17 Q. SO WE ARE TALKING 15 YEARS AGO?  
18 A. YES.  
19 Q. DID YOU PUBLISH IT IN SOME OBSCURE  
20 OFF-SHORE JOURNAL IN --  
21 A. NO. THIS WORK WAS PUBLISHED IN THE  
22 "NEW ENGLAND JOURNAL OF MEDICINE" WHICH IS PROBABLY  
23 THE TOP RECOGNIZED JOURNAL IN THE WORLD.  
24 Q. WE HAD HEARD FROM A NUMBER WITNESS  
25 WHO MIGHT HAVE HAD A SLIGHTLY BRITISH BIAS THAT THE  
26 "LANCET" IN ENGLAND AND THE "NEW ENGLAND JOURNAL"  
27 OF MEDICINE IN AMERICA WERE PROBABLY THE TOP  
28 MEDICAL JOURNALS IN THE WORLD.

1940

1 DOES THAT SOUND ABOUT RIGHT TO YOU?  
2 A. YES.  
3 Q. AND THIS WORK THAT YOU JUST  
4 MENTIONED, ON COMPENSATION, WAS PUBLISHED IN THE

5 "NEW ENGLAND JOURNAL OF MEDICINE," 15 OR SO YEARS  
6 AGO?  
7 A. YES.  
8 Q. WE HAD ANOTHER WITNESS HERE, THIS  
9 DR. FARONE. YOU KNOW HIM?  
10 A. YES.  
11 Q. AND HE TALKED ABOUT THE ISSUE OF,  
12 HE TALKED ABOUT MANY ISSUES. BUT ONE OF THE ISSUES  
13 HE TALKED ABOUT WAS THE FACT THAT FROM A FULL --  
14 MR. CARLTON: OBJECT TO THE  
15 RECHARACTERIZATION OF THE TESTIMONY.  
16 THE COURT: SUSTAINED.  
17 Q BY MR. PIUZE: CAN I TRY THIS  
18 HYPOTHETICALLY, YOUR HONOR?  
19 THE COURT: WELL, YOU COULD NAME A TOPIC.  
20 I WILL LET YOU DO THAT. JUST DON'T DESCRIBE  
21 CONCLUSIONS.  
22 MR. PIUZE: OKAY, THAT'S FINE.  
23 Q BY MR. PIUZE: WE HAD A DISCUSSION  
24 HERE, YOU WEREN'T HERE, BUT THE DISCUSSION HAD TO  
25 DO WITH THE FACT THAT --  
26 MR. CARLTON: SAME OBJECTION.  
27 THE COURT: OVERRULED.  
28 TOPIC, PLEASE.

1941

1 Q BY MR. PIUZE: YEAH. THE TOPIC IS  
2 THAT THE AMOUNT OF TAR THAT A PERSON CAN GET OUT OF  
3 SORT OF A FULL TAR CIGARETTE, A REDUCED TAR  
4 CIGARETTE, ULTRA REDUCED TAR CIGARETTE, STRANGELY  
5 ENOUGH, TURNS OUT TO BE ABOUT THE SAME IN THE END  
6 BECAUSE OF COMPENSATION.  
7 ARE YOU FAMILIAR WITH THAT CONCEPT?  
8 A. YES.  
9 Q. IS THAT THE SAME CONCEPT THAT  
10 APPLIES TO THE NICOTINE ALSO?  
11 A. YES.  
12 Q. HAVE YOU WRITTEN ON THE FACT THAT  
13 REGARDLESS OF WHETHER SOMETHING IS CALLED A REGULAR  
14 OR A LIGHT OR AN ULTRA LIGHT, THAT IN THE END, THE  
15 SMOKER IS GOING TO WIND UP WITH ROUGHLY THE SAME  
16 AMOUNT OF NICOTINE?  
17 A. YES.  
18 Q. NOW, ARE LIGHT CIGARETTES, AS  
19 ADDICTIVE, GENERALLY, AS FULL STRENGTH CIGARETTES?  
20 A. YES. FOR THE REASONS OF  
21 COMPENSATION, OUR RESEARCH HAS SHOWN THAT SMOKERS  
22 TAKE IN VIRTUALLY THE SAME AMOUNT OF NICOTINE FROM  
23 A LOW YIELD CIGARETTE THAN A HIGH YIELD CIGARETTE.  
24 AND IT'S BECAUSE -- THIS WAS WORK  
25 WE DID EVEN BEFORE THE CIGARETTE REDUCTION STUDY.  
26 WE PUBLISHED THIS IN "NEW ENGLAND JOURNAL OF  
27 MEDICINE," 1983, THAT SURVEYING SMOKERS SMOKING A  
28 WIDE RANGE OF BRANDS, FROM NICOTINE YIELDS OF .1

1942

1 MILLIGRAM TO 1.6 MILLIGRAMS, THAT THEIR LEVELS OF  
2 NICOTINE INTAKE WERE THE SAME, DIDN'T MATTER.  
3 THEY WOULD TAKE IN THE SAME AMOUNT  
4 OF NICOTINE, NO MATTER WHAT BRAND THEY WERE TAKING.  
5 WE ALSO FOUND SOMETHING THAT WAS A  
6 SURPRISE TO ME AT THE TIME, BUT I THINK CAN HELP  
7 PEOPLE UNDERSTAND WHAT HAPPENED, LOW YIELD

8 CIGARETTES DON'T CONTAIN LESS OF ANYTHING. I THINK  
9 IT CONTAINS -- LESS TAR AND NICOTINE.  
10 WE MEASURED THE TOBACCO OF  
11 CIGARETTES OF MANY DIFFERENT YIELDS, HIGH TO LOW  
12 YIELD CIGARETTES IN 1983 AND FOUND, TO MY SURPRISE,  
13 AT THE TIME, THAT THE NICOTINE IN A LOW YIELD  
14 CIGARETTE IS EXACTLY THE SAME AS A HIGH YIELD  
15 CIGARETTE, THE TOBACCO IS THE SAME.  
16 WHAT MAKES THEM LOW YIELD HAS TO DO  
17 WITH HOW THEY ARE ENGINEERED AND HOW THOSE  
18 ENGINEERING CHARACTERISTICS EFFECT HOW THEY ARE  
19 TESTED ON THE MACHINE.  
20 BUT THERE'S THE SAME AMOUNT OF  
21 TOBACCO AND THE SAME AMOUNT OF NICOTINE IN THE LOW  
22 YIELD AS HIGH YIELD CIGARETTES. AND SMOKERS CAN  
23 EASILY, BY SMOKING DIFFERENTLY THAN THE MACHINES,  
24 GET WHATEVER NICOTINE THEY NEED.  
25 AND WITH NICOTINE COMES TAR.  
26 THERE'S A GOOD CORRELATION AND RELATIONSHIP BETWEEN  
27 NICOTINE AND TAR.  
28 SO IF YOU COMPENSATE FOR NICOTINE,

1943

1 YOU GET JUST AS MUCH TAR AS WITHOUT.  
2 Q. SO I DON'T BOTHER ASKING THE LAST  
3 QUESTION BECAUSE ONCE YOU GO FROM LIGHTS TO ULTRA  
4 LIGHTS, IT IS THE SAME STORY ALL OVER AGAIN?  
5 A. YES. THE ONLY CIGARETTES WE FOUND  
6 THAT WERE ANY DIFFERENT WERE THE VERY LOWEST BRANDS  
7 OF CIGARETTES WHICH WERE THE 0.1 MILLIGRAM OR 1  
8 MILLIGRAM TAR. AND JUST A COUPLE BRANDS OF THOSE  
9 AND THEY COUNT FOR A VERY SMALL PERCENTAGE OF TOTAL  
10 SALES.  
11 WHAT WE FOUND WITH THOSE IS ABOUT A  
12 30 PERCENT REDUCTION OF EXPOSURE.  
13 BUT FOR EVERYTHING ELSE, THERE WAS  
14 PRETTY MUCH A FLAT LINE, NO RELATIONSHIP IN THAT  
15 STUDY BETWEEN YIELD AND EXPOSURE.  
16 Q. OKAY. THANK YOU. HERE'S A NEW  
17 SUBJECT AGAIN.  
18 WHAT IS UP ON THE SCREEN HERE IS  
19 DATED APRIL 14, AND WHAT'S ON THE SCREEN HERE, IS  
20 FROM THE "NEW YORK TIMES" OF APRIL 14, 1994 --  
21 EXCUSE ME, APRIL 15 IS THE DAY THIS WAS PUBLISHED,  
22 1994.  
23 AND THIS PARTICULAR STORY, THE  
24 DATELINE ON THE STORY IS THE DAY BEFORE, APRIL 14,  
25 1994. AND THE STORY OBVIOUSLY HAS TO DO WITH SEVEN  
26 EXECUTIVES OF THE TOBACCO COMPANIES TESTIFYING  
27 BEFORE CONGRESS. AS THE JURY HAS BEEN SHOWN  
28 ALREADY HERE, ONE OF THE THINGS THEY SAID WAS THAT

1944

1 CIGARETTES AREN'T ADDICTIVE.  
2 SO JUST FOR OPENERS, YOU ARE  
3 GENERALLY FAMILIAR WITH THAT TESTIMONY THAT  
4 OCCURRED?  
5 A. I AM VERY FAMILIAR WITH THAT  
6 TESTIMONY.  
7 Q. NOW, ON PAGE 11, I AM GOING TO  
8 START AT THE BOTTOM HERE FOR OBVIOUS REASONS AND  
9 THEN WORK MY WAY UP.  
10 BUT ON PAGE 11 OF THE "NEW YORK

11 TIMES," THAT DAY, APRIL 15, 1994, PHILIP MORRIS  
12 U.S.A. RAN A, I DON'T KNOW, IT LOOKS TO ME TO BE  
13 LIKE A TWO-THIRDS PAGE AD, I HAVE SHOWED YOU THIS  
14 BEFORE EARLIER TODAY?

15 A. YES.

16 Q. AND THE TWO-THIRDS PAGE AD FROM  
17 APRIL 15, 1994, WAS ENTITLED:

18 "SMOKERS AND NON-SMOKERS,  
19 FACTS YOU SHOULD KNOW.

20 "BOTH SMOKERS AND  
21 NON-SMOKERS DESERVE TO KNOW FACTS NOT  
22 INNUENDO ABOUT CIGARETTES. YESTERDAY  
23 PHILIP MORRIS AND OTHER U.S. TOBACCO  
24 MANUFACTURERS HELPED TO SET THE RECORD  
25 STRAIGHT BY SPEAKING BEFORE  
26 CONGRESSIONAL COMMITTEE. FOR YOUR  
27 CONSIDERATION HERE ARE HIGHLIGHTS OF  
28 THE INFORMATION PRESENTED BY PHILIP

1945

1 MORRIS IN THAT SESSION."

2 SO I WANT TO GO TO THE FACT THAT  
3 SECOND FROM THE BOTTOM THERE, AND THE ONE I AM  
4 INTERESTED IN IS THE ONE ON TOP.

5 "FACT: PHILIP MORRIS DOES  
6 NOT BELIEVE CIGARETTE SMOKING IS  
7 ADDICTIVE. PEOPLE CAN AND DO QUIT  
8 SMOKING ALL THE TIME. ACCORDING TO  
9 THE 1988 SURGEON GENERAL'S REPORT,  
10 THERE ARE MORE THAN 40 MILLION FORMER  
11 SMOKERS IN THE UNITED STATES AND 90  
12 PERCENT QUIT ON THEIR OWN WITHOUT ANY  
13 OUTSIDE HELP."

14 I WANT TO DISCUSS THOSE SENTENCES  
15 WITH YOU STARTING AS FOLLOWS: PHILIP MORRIS IS  
16 QUOTING THE 1988 SURGEON GENERAL'S REPORT TO  
17 BOLSTER ITS VIEWS ON ADDICTION.

18 NOW, IS THE 1988 SURGEON GENERAL'S  
19 REPORT THE ONE WHERE YOU WERE ONE OF FOUR  
20 SCIENTIFIC EDITORS ON ADDICTION?

21 A. YES.

22 Q. DID THE 1988 SURGEON GENERAL'S  
23 REPORT SAY THAT THERE ARE MORE THAN 40 MILLION  
24 FORMER SMOKERS IN THE UNITED STATES?

25 A. I THINK SO. I DON'T REMEMBER THE  
26 EXACT NUMBER BUT THAT'S PROBABLY CORRECT.

27 Q. WELL, IF THAT'S CORRECT, DOESN'T  
28 THAT BOLSTER THE CLAIM THAT PHILIP MORRIS DOES NOT

1946

1 BELIEVE CIGARETTE SMOKING IS ADDICTIVE?

2 A. NO. IT DOES NOT, AT ALL.

3 THE ISSUE OF ADDICTION RELATES TO A  
4 PROBLEM CONTROLLING DRUG USE. IT MEANS THAT WHEN  
5 YOU BECOME UNDER THE INFLUENCE OF A DRUG, THEN IT'S  
6 DIFFICULT TO CHANGE THAT USE, TO STOP USE.

7 IT DOESN'T MEAN ONE CAN'T QUIT.  
8 AND THIS IS TRUE FOR ALL DRUGS OF ABUSE OR ALL  
9 ADDICTING DRUGS. IT MEANS THAT IT IS OFTEN QUITE  
10 DISRUPTIVE TO YOUR LIFE AND DIFFICULT. WE KNOW  
11 NOW, AND IT WAS KNOWN BACK IN 1988, THAT THE VAST  
12 MAJORITY OF SMOKERS, 70 PERCENT OF SMOKERS, SAY  
13 THAT THEY WOULD LIKE TO QUIT SMOKING, AT THIS TIME.



14 AND IT WAS TRUE BACK IN '88 AS WELL.  
15 35 PERCENT OF SMOKERS SAY THEY HAVE  
16 OR HAVE HAD EVIDENCE OF QUITTING FOR AT LEAST A DAY  
17 EACH YEAR BECAUSE THEY WANT TO TRY TO QUIT.  
18 THE PERCENT WHO SUCCESSFULLY QUIT  
19 ARE ABOUT TWO AND A HALF PERCENT.  
20 SO MOST SMOKERS SAY THEY WOULD LIKE  
21 TO BE NON-SMOKERS. MANY TRY TO QUIT AND VERY FEW  
22 SUCCEED.  
23 NOW, MOST WHO WANT TO QUIT  
24 ULTIMATELY DO SUCCEED BUT ON AVERAGE IT TAKES FOUR  
25 TO FIVE QUIT ATTEMPTS.  
26 NOW, THAT DOESN'T MEAN THAT PEOPLE  
27 HAVEN'T QUIT AND THEY HAVEN'T QUIT ON THEIR OWN.  
28 IT MEANS THAT IT'S A VERY DIFFICULT PROCESS, IT

1947

1 TAKES A LONG TIME. MANY PEOPLE SMOKE FOR MUCH  
2 LONGER THAN THEY WOULD LIKE TO. AND THIS CONCEPT  
3 OF ADDICTION, MEANING LOSS OF CONTROL OF DRUG USE,  
4 AND THESE SORT OF NUMBERS ARE THE SAME AS FOR OTHER  
5 DRUGS OF ABUSE.  
6 Q. WELL, LET ME STOP YOU THERE,  
7 BECAUSE THAT'S WHAT I HAD INTENDED TO DO, SO LET ME  
8 DO IT.  
9 LET'S JUST CHANGE THESE WORDS JUST  
10 TO SEE IF THIS FITS. LET'S FORGET PHILIP MORRIS  
11 NOW. PHILIP MORRIS IS OUT OF THIS CASE.  
12 ALCOHOL IS NOT ADDICTIVE BECAUSE  
13 PEOPLE HAVE GONE TO A.A. AND QUIT AND SO ALCOHOL  
14 ISN'T ADDICTIVE.  
15 NOW, WOULD YOU THINK THAT'S GOOD  
16 LOGIC?  
17 A. NO.  
18 Q. HEROIN ISN'T ADDICTIVE BECAUSE  
19 PEOPLE HAVE USED HEROIN AND QUIT IT AND THEREFORE,  
20 HEROIN ISN'T ADDICTIVE. IS THAT BALONEY?  
21 A. YES.  
22 Q. LET'S GO TO THE NEXT ONE. AND THE  
23 FOCUS IS, "90 PERCENT -- PHILIP MORRIS DOES NOT  
24 BELIEVE CIGARETTE SMOKING IS ADDICTIVE. 90 PERCENT  
25 OF PEOPLE WHO QUIT, QUIT ON THEIR OWN, WITHOUT  
26 OUTSIDE HELP."  
27 NOW, DO YOU HAVE SOME KNOWLEDGE  
28 ABOUT OUTSIDE HELP AND EVIDENCE OF QUITTING?

1948

1 A. YES.  
2 Q. TELL THE JURY, PLEASE.  
3 A. WELL, THERE ARE WHAT ARE CALLED  
4 BEHAVIORAL AIDS LIKE GETTING COUNSELING OR JOINING  
5 A SMOKING GROUP OR SMOKE ENDERS OR SMOKERS  
6 ANONYMOUS. THOSE ARE ALL BEHAVIORAL COUNSELING.  
7 THEN THERE ARE MEDICATIONS,  
8 NICOTINE PATCHES, NICOTINE GUM, NICOTINE NASAL  
9 SPRAY. ZYBAN IS A NEW MEDICATION.  
10 AND THEN THERE ARE OTHER THINGS  
11 PEOPLE TRY, HYPNOSIS, ACUPUNCTURE.  
12 IN FACT, THERE ARE HUNDREDS OF  
13 THINGS THAT HAVE BEEN DESCRIBED OVER THE YEARS TO  
14 TRY TO HELP SMOKERS QUIT WHICH, I THINK, GIVES AN  
15 IDEA THAT IT IS NOT AN EASY THING. THERE WOULDN'T  
16 BE SO MANY ORGANIZATIONS AND SO MANY MEDICATIONS

17 AVAILABLE TO HELP PEOPLE QUIT SMOKING IF IT WAS  
18 JUST A MATTER OF MAKING UP THEIR MIND TO JUST QUIT  
19 AND STOP IT.  
20 MANY PEOPLE TRY DIFFERENT SORTS OF  
21 THINGS BEFORE THEY CAN QUIT.  
22 Q. I WANT TO PUT THE SPOTLIGHT BACK ON  
23 YOU AND YOUR BACKGROUND AND QUALIFICATIONS NOW, AT  
24 LEAST FOR A LITTLE WHILE.  
25 HAVE YOU HAD SOME BACKGROUND AND  
26 EXPERIENCE IN REGARD TO THE NICOR -- WHATEVER --  
27 THE GUM OR THE PATCHES OR THE REPLACEMENT, NICOTINE  
28 REPLACEMENT STUFF THAT SOME PEOPLE USE AND TRY TO

1949

1 USE?  
2 A. YES.  
3 Q. EXPLAIN, PLEASE.  
4 A. WELL, WE DO A LOT OF WORK STUDYING  
5 EFFECTS OF NICOTINE IN PEOPLE, STUDYING THE TIME  
6 COURSE, THE EFFECTS, THE ABSORPTION LEVELS IN THE  
7 BODY.  
8 AND WE DID MANY OF THE STUDIES THAT  
9 THE FOOD AND DRUG ADMINISTRATION RELIED UPON FOR  
10 DOSING GUIDELINES, FOR SAYING WHAT DOSE A PATCH  
11 GIVES, FOR EXAMPLE.  
12 A LOT OF IT WAS DONE IN MY  
13 LABORATORY.  
14 Q. IS THERE SOMETHING -- WHY CAN'T A  
15 PERSON JUST USE A PATCH OR THE GUM INSTEAD OF  
16 INHALING THE NICOTINE?  
17 A. WELL, THIS IS REALLY AN IMPORTANT  
18 POINT TO UNDERSTAND WHY SMOKING, IN PARTICULAR, IS  
19 ADDICTING.  
20 IT GOES BACK TO WHAT WE SAID  
21 BEFORE, THAT WHEN YOU SMOKE A CIGARETTE, YOU GET A  
22 RAPID ABSORPTION OF A HIGH LEVEL OF NICOTINE THAT  
23 GOES TO YOUR BRAIN WITHIN SECONDS.  
24 SO IF I WERE TO MAKE A GRAPH, FOR  
25 EXAMPLE, I COULD SHOW VERY -- IT WOULD BE LIKE A  
26 SPIKE OF NICOTINE IN THE BRAIN.  
27 NICOTINE FROM PATCHES IS ABSORBED  
28 OVER HOURS, VERY SLOWLY. NICOTINE FROM GUN IS

1950

1 ABSORBED OVER 30 MINUTES. SO, AGAIN, THAT'S PRETTY  
2 SLOW.  
3 AND THE SAME THING FROM THE  
4 NICOTINE PUFFER, INHALER AND NICOTINE LOZENGES, THE  
5 ABSORPTION IS SLOW AND THE EFFECTS OF NICOTINE ARE  
6 MUCH DIFFERENT.  
7 SO THE SMOKER DOESN'T GET THE  
8 SATISFACTION OF TAKING A PUFF OF A CIGARETTE. THEY  
9 DO GET RELIEF OF WITHDRAWAL SYMPTOMS. BUT A SMOKER  
10 WILL SAY IT'S JUST NOT THE SAME THING BECAUSE THEY  
11 ARE NOT GETTING THE SAME RAPID HIGH LEVEL DOSE  
12 REINFORCEMENT.  
13 Q. SO TO JUMP BACK TO AN ANALOGY -- TO  
14 JUMP BACK TO AN EXAMPLE YOU GAVE, I'D LIKE TO MAKE  
15 AN ANALOGY. TELL ME IF THIS IS RIGHT OR WRONG.  
16 EARLIER YOU TOLD THE JURY THAT SMOKING CRACK  
17 COCAINE IS MORE ADDICTIVE BECAUSE THERE'S A MORE  
18 INSTANTANEOUS HIT BECAUSE YOU ARE INHALING IT OR  
19 SNORTING IT OR EATING IT OR SOMETHING. AND IS THAT

20 WHAT WE ARE TALKING ABOUT AGAIN NOW, BUT BECAUSE  
21 THE TOBACCO IS BEING INHALED AND GOING STRAIGHT TO  
22 THE BRAIN, IT'S JUST DIFFERENT, MORE ADDICTIVE THAN  
23 USING A PATCH OR CHEWING SOME GUM?

24 A. IT'S EXACTLY THE SAME ISSUE.

25 Q. SO ANYWAY, BACK TO THE NEWSPAPER ON  
26 THE 15TH OF APRIL, 1994, PHILIP MORRIS SAID IT  
27 DIDN'T BELIEVE SMOKING WAS -- CIGARETTE SMOKING WAS  
28 ADDICTIVE AND QUOTED, SORT OF SIDEWAYS, THE SURGEON

1951

1 GENERAL'S REPORT OF 1988.

2 MR. CARLTON: OBJECTION TO THE COMMENT.

3 THE COURT: "SIDEWAYS."

4 MR. PIUZE: I WILL WITHDRAW THE QUESTION  
5 AND I WILL DO IT DIFFERENTLY.

6 THE COURT: THANK YOU.

7 Q BY MR. PIUZE: PHILIP MORRIS TOLD  
8 WHOEVER WAS READING THE "NEW YORK TIMES" ON APRIL  
9 15, 1994 THAT IT DID NOT BELIEVE CIGARETTE SMOKING  
10 WAS ADDICTIVE AND SEEMINGLY BASED ITS STATEMENTS,  
11 IN PART, ON THE 1988 SURGEON GENERAL'S REPORT, OR  
12 AT LEAST TO ME --

13 THE COURT: SIR, DO YOU AGREE WITH THAT  
14 ASSESSMENT?

15 THE WITNESS: WELL, THEY CERTAINLY CITE  
16 SOME DATA FROM THE REPORT. ALTHOUGH THE REPORT DID  
17 NOT CONCLUDE THAT IT WAS NOT ADDICTIVE.

18 Q BY MR. PIUZE: THAT'S WHERE MY  
19 QUESTION WAS GOING.

20 IF PHILIP MORRIS HAD QUOTED FROM  
21 THE SURGEON GENERAL'S REPORT OF 1988 ON THE ISSUE  
22 OF WHETHER OR NOT CIGARETTE SMOKING WAS ADDICTIVE,  
23 IT WOULD HAVE HAD TO HAVE SAID YES.

24 A. IT WOULD HAVE SAID CIGARETTE  
25 SMOKING IS ADDICTIVE. NICOTINE IS THE DRUG THAT IS  
26 RESPONSIBLE FOR THAT ADDICTION.

27 Q. SO IF PHILIP MORRIS, ON APRIL 15,  
28 1994, IN THE "NEW YORK TIMES," HAD TRULY QUOTED OUT

1952

1 OF THE SURGEON GENERAL'S REPORT ON WHETHER  
2 CIGARETTE SMOKING WAS AND WHETHER NICOTINE WAS  
3 ADDICTIVE, IT NECESSARILY, IF IT REALLY QUOTED OUT  
4 OF THE SURGEON GENERAL'S REPORT, WOULD HAVE HAD TO  
5 HAVE DISAGREED WITH ITS OWN CHIEF EXECUTIVES  
6 TESTIFYING BEFORE CONGRESS THE DAY BEFORE?

7 MR. CARLTON: OBJECTION, LEADING.

8 THE COURT: ARGUMENTATIVE.

9 Q BY MR. PIUZE: I'D LIKE TO SHOW  
10 YOU EXHIBIT 3.00, WHICH IS A 1972 DOCUMENT ENTITLED  
11 "MOTIVES AND INCENTIVES IN CIGARETTE SMOKING."

12 AND I WILL JUST SHOW YOU THE FIRST  
13 PAGE HERE, AND APOLOGIZE FOR THE QUALITY.

14 DO YOU SEE THE AUTHOR, WILLIAM  
15 DUNN, JUNIOR, PHILIP MORRIS RESEARCH CENTER,  
16 RICHMOND, VIRGINIA.

17 CAN YOU MAKE THAT OUT?

18 A. YES.

19 Q. YOU ARE FAMILIAR WITH THIS  
20 DOCUMENT?

21 A. YES.

22 Q. THIS DOCUMENT DISCUSSES, IN PART,

23 THE SAINT MARTIN'S CONFERENCE?  
24 A. YES.  
25 Q. DO YOU KNOW WHAT THE SAINT MARTIN'S  
26 CONFERENCE WAS?  
27 A. WELL, THIS WAS A CONFERENCE ON  
28 SMOKING, I THINK, BEHAVIOR RELATED ISSUES THAT

1953

1 INVOLVED THE TOBACCO INDUSTRY AND SOME SELECTED  
2 SCIENTISTS FROM MEDICAL SCHOOLS AND OTHER PLACES.  
3 Q. AND DRAWING YOUR ATTENTION TO THE  
4 UNDERLINED, THE HIGHLIGHTED STUFF IN YELLOW, AGAIN,  
5 I WILL READ IT OUT LOUD AND THEN I WILL ASK YOU  
6 ABOUT IT.  
7 "AS WITH EATING AND  
8 COPULATING, SO IT IS WITH SMOKING.  
9 THE PHYSIOLOGICAL EFFECTS SERVES AS  
10 THE PRIMARY INCENTIVE; ALL OTHER  
11 INCENTIVES ARE SECONDARY. THE  
12 MAJORITY OF THE CONFEREES WOULD GO  
13 EVEN FURTHER AND ACCEPT THE  
14 PROPOSITION THAT NICOTINE IS THE  
15 ACTIVE CONSTITUENT OF CIGARETTE SMOKE.  
16 WITHOUT NICOTINE, THE ARGUMENT GOES,  
17 THERE WOULD BE NO SMOKING. SOME  
18 STRONG EVIDENCE CAN BE MARTIALLED TO  
19 SUPPORT THIS ARGUMENT.  
20 "ONE, NO ONE HAS EVER BECOME  
21 A CIGARETTE SMOKER BY SMOKING  
22 CIGARETTES WITHOUT NICOTINE.  
23 "TWO, MOST OF THE  
24 PHYSIOLOGICAL RESPONSES TO INHALED  
25 SMOKE HAVE BEEN SHOWN TO BE  
26 NICOTINE-RELATED.  
27 "THREE, DESPITE MANY LOW  
28 NICOTINE BRAND ENTRIES INTO THE

1954

1 MARKETPLACE, NONE OF THEM HAVE  
2 CAPTURED A SUBSTANTIAL SEGMENT OF THE  
3 MARKET."  
4 Q BY MR. PIUZE: NOW, IS THERE  
5 ANYTHING THERE THAT I READ THAT'S HIGHLIGHTED FOR  
6 THE JURY TO SHOW YOU WITH WHICH YOU DISAGREE OR IS  
7 THAT ALL RIGHT?  
8 A. NO. THIS MAKES IT VERY CLEAR THAT  
9 DR. DUNN, AND I THINK THE OTHER TOBACCO SCIENTISTS,  
10 UNDERSTOOD THAT PEOPLE SMOKE CIGARETTES TO GET  
11 NICOTINE.  
12 SO -- AND NICOTINE IS REQUIRED FOR  
13 SMOKING. PEOPLE DON'T SMOKE WITHOUT IT. AND IT'S  
14 THE EFFECTS OF NICOTINE THAT PEOPLE ARE SEEKING  
15 WHEN THEY USE TOBACCO.  
16 Q. THANK YOU.  
17 I AM GOING TO FLIP THE PAGE. THIS  
18 IS PAGE 5.  
19 "WHY THEN IS THERE NOT A  
20 MARKET FOR NICOTINE, PER SE, TO BE  
21 EATEN, SUCKED, DRUNK, INJECTED,  
22 INSERTED OR INHALED AS A PURE AEROSOL?  
23 THE ANSWER, AND I FEEL QUITE STRONGLY  
24 ABOUT THIS, IS THAT THE CIGARETTE IS,  
25 IN FACT, AMONG THE MOST AWE-INSPIRING

26           EXAMPLES OF THE INGENUITY OF MAN. LET  
27           ME EXPLAIN MY CONVICTION.  
28           "THE CIGARETTE SHOULD BE

1955

1           CONCEIVED NOT AS A PRODUCT BUT AS A  
2           PACKAGE. THE PRODUCT IS NICOTINE.  
3           THE CIGARETTE IS BUT ONE OF MANY  
4           PACKAGED LAYERS. THERE IS THE CARTON  
5           WHICH CONTAINS THE PACK, WHICH  
6           CONTAINS THE CIGARETTE, WHICH CONTAINS  
7           THE SMOKE. THE SMOKE IS THE FINAL  
8           PACKAGE. THE SMOKER MUST STRIP OFF  
9           ALL THESE PACKAGE LAYERS TO GET TO  
10          THAT WHICH HE SEEKS."  
11          SO LET ME STOP THERE AGAIN. YOU  
12   AGREE WITH ALL THAT SO FAR?  
13          A.     YES. THIS PART OF THE DOCUMENT IS  
14   JUST RESTATING THE IDEA THAT CIGARETTES ARE DRUG  
15   DELIVERY DEVICES AND THAT THIS IS THEIR  
16   CHARACTERIZATION OF HOW A CIGARETTE IS A DRUG  
17   DELIVERY DEVICE.  
18          Q.     (READING)  
19          "THINK OF THE CIGARETTE PACK  
20          AS A STORAGE CONTAINER FOR A DAY'S  
21          SUPPLY OF NICOTINE. THINK OF THE  
22          CIGARETTE AS A DISPENSER FOR A DOSE  
23          UNIT OF NICOTINE."  
24          AND THAT, AGAIN, IS WHAT YOU JUST  
25   FINISHED SAYING?  
26          A.     YES.  
27          Q.     SO YOU AGREE WITH THAT?  
28          A.     YES.

1956

1           Q.     PAGE 6.  
2           "THINK OF A PUFF OF SMOKE AS  
3           THE VEHICLE OF NICOTINE. SMOKE IS  
4           BEYOND QUESTION THE MOST OPTIMIZED  
5           VEHICLE OF NICOTINE AND THE CIGARETTE  
6           THE MOST OPTIMIZED DISPENSER OF THE  
7           SMOKE."  
8           SO THE SAME THING ALL OVER AGAIN?  
9           A.     YES.  
10          Q.     SO THAT'S 72.  
11          LET ME SHOW YOU A DOCUMENT NUMBER  
12   421. AND I WILL SHOW YOU THE FACE PAGE FIRST.  
13  
14          \* (EXHIBIT 421, ARTICLE,  
15          MARKED FOR I.D.)  
16  
17          Q     BY MR. PIUZE: AND I DRAW YOUR  
18   ATTENTION TO THE FACT THAT, (A), IT'S A PHILIP  
19   MORRIS U.S.A. INTER-OFFICE MEMO; (B), THE DATE IS  
20   JUNE 2, 1976.  
21          AND THE NAMES HERE IS, MR. J. J.  
22   MORGAN, THAT'S WHO IT IS TO; MR. AL UDOW, U-D-O-W,  
23   THAT'S WHO IT IS FROM, AND THE SUBJECT OF THIS MEMO  
24   IS "WHY PEOPLE START TO SMOKE."  
25          I AM GOING TO SHOW YOU PAGE 3 NOW  
26   OF THE HIGHLIGHTED PARAGRAPH.  
27          "FOR PERSONS WHO ARE  
28   SELF-CONSCIOUS AND INSECURE, SMOKING

1957

1 PROVIDES AN ACTIVITY AND SOMETHING TO  
2 DO WITH THEIR HANDS THAT TAKES THEIR  
3 MINDS OFF THEMSELVES. MANY ACCEPT THE  
4 IMAGE CREATED BY CIGARETTE  
5 ADVERTISEMENTS OF CIGARETTE SMOKING AS  
6 A SYMBOL OF POISE, SELF-CONFIDENCE AND  
7 SOCIAL SUCCESS. BUT ONCE ONE BECOMES  
8 DEPENDENT UPON CIGARETTES, HABITUATION  
9 OR ADDICTION ARE IMPELLING DRIVES TO  
10 CONTINUE."  
11 AND I WANT TO TALK ABOUT THE WORDS  
12 "DEPENDENT," "HABITUATION" AND "ADDICTION."  
13 LET ME READ THE SENTENCE ONE MORE  
14 TIME.  
15 "BUT ONCE ONE BECOMES  
16 DEPENDENT ON CIGARETTES, HABITUATION  
17 OR ADDICTION ARE IMPELLING DRIVES TO  
18 CONTINUE."  
19 Q. YOU HAVE TOLD US ABOUT ADDICTION.  
20 WHAT'S HABITUATION?  
21 A. WELL, THAT GETS BACK TO THE 1964  
22 SURGEON GENERAL'S REPORT, THE FIRST REPORT ON  
23 SMOKING AND HEALTH.  
24 AT THAT TIME, THE WORLD HEALTH  
25 ORGANIZATION HAD SOME DEFINITIONS FOR HABITUATION  
26 AND ADDICTION.  
27 TO BE ADDICTING, A DRUG HAD TO BE  
28 INTOXICATING. IT HAD TO HAVE A VERY SEVERE

1958

1 WITHDRAWAL SYNDROME AND IT HAD TO BE ASSOCIATED  
2 WITH SOCIETAL INJURY, SO HARM TO SOCIETY, THINGS  
3 LIKE CRIMINALITY, ET CETERA.  
4 IT WAS CLEAR THEN, AS IT IS CLEAR  
5 NOW, THAT PEOPLE SMOKE CIGARETTES FOR NICOTINE AND  
6 THAT IT WAS EXTREMELY DIFFICULTY TO QUIT, AND THAT  
7 MANY PEOPLE COULDN'T QUIT OR WENT TO EXTREME ENDS  
8 TO TRY TO GET HELP TO QUIT.  
9 BUT BECAUSE NICOTINE WAS NOT  
10 INTOXICATING, AND WASN'T AN ANTI-SOCIAL BEHAVIOR,  
11 THE SURGEON GENERAL CALLED IT AN HABITUATION.  
12 NOW, WHAT HAPPENED AFTERWARDS, IN  
13 THE NEXT YEAR, 1965, THE WORLD HEALTH ORGANIZATION  
14 CANNED THAT DEFINITION. THEY SAID IT WASN'T  
15 ACCURATE BECAUSE IT REALLY DIDN'T DESCRIBE THE TRUE  
16 NATURE OF THE COMPULSION TO USE DRUGS.  
17 AND THAT DEFINITION DIDN'T WORK FOR  
18 DRUGS LIKE COCAINE, BECAUSE COCAINE IS IN  
19 ASSOCIATION WITH A SEVERE WITHDRAWAL SYNDROME.  
20 SO IN 1965, THE WORLD HEALTH  
21 ORGANIZATION CAME UP WITH ANOTHER DEFINITION AND  
22 GOT RID OF THE TERMS "HABITUATION" AND "ADDICTION"  
23 BUT FOCUSED ON "DEPENDENCE" AS ENCOMPASSING BOTH  
24 AND SAYING IT WAS MORE THAT A BEHAVIORAL PATTERN  
25 SUCH THAT WHEN A GIVEN PSYCHIATRIC DRUG IS USED,  
26 IT'S GIVEN SHARPLY HIGHER PRIORITIES OVER OTHER  
27 BEHAVIORS THAT ONCE HAD A HIGH PRIORITY FOR THAT  
28 PERSON. WHICH MEANS YOU START USING DRUGS TO THE

1959

1 EXCLUSION OF OTHER THINGS THAT ARE IMPORTANT TO

2 YOU, YOUR HEALTH OR MONEY OR WHATEVER.  
3 SO THAT WAS IN 1965. AND  
4 SUBSEQUENT SURGEON GENERAL'S REPORTS FOCUS MOSTLY  
5 ON DEPENDENCE.  
6 IN 1988 WE DECIDED THAT DEPENDENCE  
7 AND ADDICTION WERE REALLY SIMILAR AND THAT  
8 ADDICTION WAS UNDERSTOOD BY MANY PEOPLE BETTER IN  
9 THE SENSE OF COMPULSIVE USE OF A DRUG. AND SO WE  
10 WOULD USE BOTH TERMS TOGETHER. WE WOULD SAY  
11 ADDICTION, WHICH IS THE SAME AS DEPENDENCE, BUT  
12 ADDICTION IMPLYING THAT ONCE YOU START USING A  
13 DRUG, IT'S OFTEN VERY DIFFICULT TO QUIT.  
14 Q. IN YOUR SCIENTIFIC WRITINGS, WHEN  
15 YOU USE TERMS LIKE -- LET ME JUST GET THIS STRAIGHT  
16 HERE, ADDICTION AND DEPENDENCE, DO YOU USE THOSE  
17 TWO TERMS INTERCHANGEABLY?  
18 A. YES.  
19 Q. OR ARE THEY DIFFERENT?  
20 A. NO. I USE THOSE TERMS  
21 INTERCHANGEABLY AND MANY OTHER SCIENTISTS DO. SOME  
22 SCIENTISTS DON'T LIKE ADDICTION BECAUSE THEY THINK  
23 IT REMINDS PEOPLE OF ILLEGAL DRUGS AND CRIMINALITY.  
24 BUT MANY SCIENTISTS DO USE IT THE  
25 WAY I DO, JUST RELATING TO, BASICALLY, A LOSS OF  
26 CONTROL OVER DRUG USE.  
27 Q. SAME QUESTION ABOUT HABITUATION.  
28 NOW, THIS WRITER USES A -- APPARENTLY USED THESE

1960

1 TWO TERMS INTERCHANGEABLY, HABITUATION OR  
2 ADDICTION.  
3 AND WHEN YOU WRITE IN SCIENTIFIC  
4 WRITINGS, DO YOU USE THOSE TWO TERMS  
5 INTERCHANGEABLY?  
6 A. HARDLY ANYONE, I CAN'T THINK OF  
7 ANYONE IN RECENT TIMES WHO HAS USED "HABITUATION."  
8 THAT WAS A TERM THAT WAS DEVELOPED, AS I SAID, BY  
9 THE WORLD HEALTH ORGANIZATION IN 1957 AND REALLY  
10 SETS UP A DISTINCTION BETWEEN THAT AND ADDICTION.  
11 THAT DOESN'T MAKE PHYSIOLOGICAL SENSE. SO IT IS  
12 NOT USED ANY MORE.  
13 Q. HERE'S THE BOTTOM LINE TO WHERE I  
14 WAS GOING. OUT OF THIS PHILIP MORRIS DOCUMENT IN  
15 1976, WHERE THIS MAN SAYS "ONCE ONE BECOMES  
16 DEPENDENT UPON CIGARETTES, HABITUATION OR ADDICTION  
17 ARE IMPELLING DRIVES TO CONTINUE." THAT STATEMENT  
18 IS TOTALLY AT ODDS WITH WHAT CAME 18 YEARS LATER  
19 FROM THE CHIEF EXECUTIVE OFFICER, IS IT NOT?  
20 A. YES. CERTAINLY IT IS MISLEADING  
21 BECAUSE EVEN IF ONE WANTS TO ARGUE THE DEFINITIONS,  
22 THAT ADDICTION MUST MEAN INTOXICATION, I THINK IT'S  
23 MISLEADING TO TELL PEOPLE IT'S NOT ADDICTING.  
24 BECAUSE MOST PEOPLE, WHEN THEY THINK OF ADDICTING,  
25 DON'T NECESSARILY THINK OF INTOXICATING. THEY  
26 THINK ADDICTING MEANS THAT'S HARD TO QUIT.  
27 AND SCIENTISTS HAVE KNOWN THAT,  
28 TOBACCO INDUSTRY HAS KNOWN, THE DOCUMENTS WELL

1961

1 DOCUMENT THAT PEOPLE SMOKE FOR NICOTINE AND THEY  
2 HAVE A HARD TIME QUITTING. AND THAT WAS NOT AT ALL  
3 CONVEYED IN THAT ADVERTISEMENT IN 1995.  
4 Q. 4?

5 A. 4, EXCUSE ME.  
6 Q. OKAY. ONE MORE PAGE OUT OF THIS  
7 AND I HAVE ONE MORE DOCUMENT AFTERWARD.  
8 THIS IS PAGE 7:  
9 "ON DEEPER PROBING, THE  
10 CIRCUMSTANCES IN WHICH SMOKING OCCURS  
11 MAY BE GENERALIZED AS FOLLOWS:  
12 "ONE, AS A NARCOTIC,  
13 TRANQUILIZER, OR SEDATIVE. SMOKERS  
14 REGULARLY USE CIGARETTES AT TIMES OF  
15 STRESS."  
16 IT ALMOST SOUNDS LIKE YOU WERE  
17 READING OFF OF THIS IN SOME OF YOUR EARLIER  
18 TESTIMONY.  
19 A. YES. I THINK IT'S STRIKING BECAUSE  
20 PEOPLE SOMETIMES DON'T APPRECIATE THAT NICOTINE CAN  
21 BE A -- CAN BE DIFFERENT THINGS. IT CAN HAVE  
22 NARCOTIC TYPE AFFECTS. IT CAN HAVE TRANQUILIZING  
23 EFFECTS, SEDATION, AND IS USED IN STRESS.  
24 THIS IS INFORMATION THAT HAS BEEN  
25 WELL-KNOWN TO SCIENTISTS AND TO THE INDUSTRY FOR  
26 MANY YEARS.  
27 Q. MANY YEARS, WE ARE TALKING GOING  
28 BACK, THIS IS 1976?

1962

1 A. YES.  
2 Q. AND BEFORE?  
3 A. AND BEFORE.  
4 Q. HERE'S A LAST DOCUMENT. THIS IS  
5 1980, AND THE'S DOCUMENT NUMBER 423.00.  
6 FIRST PAGE SHOWS, IT'S PHILIP  
7 MORRIS U.S.A., IT'S 1980, IT'S TO DR. SELIGMAN FROM  
8 W.L. DUNN, AND THE SUBJECT IS THE NICOTINE RECEPTOR  
9 PROGRAM.  
10 AND I'D LIKE TO READ WHAT IS  
11 HIGHLIGHTED HERE IN YELLOW AND DISCUSS IT WITH YOU  
12 AGAIN.  
13 "THE PSYCHOPHARMACOLOGY OF  
14 NICOTINE IS A HIGHLY VEXATIOUS TOPIC.  
15 IT IS WHERE THE ACTION IS FOR THOSE  
16 DOING FUNDAMENTAL RESEARCH ON SMOKING,  
17 AND FROM WHERE MOST LIKELY WILL COME  
18 SIGNIFICANT SCIENTIFIC DEVELOPMENTS  
19 PROFOUNDLY INFLUENCING THE INDUSTRY.  
20 YET IT IS WHERE OUR ATTORNEYS LEAST  
21 WANT US TO BE, FOR TWO REASONS. IT IS  
22 IMPORTANT TO HAVE THESE TWO REASONS  
23 EXPRESSED AND DISTINGUISHED FROM ONE  
24 ANOTHER. THE FIRST REASON IS THE  
25 OLDEST AND IS IMPLICIT IN THE LEGAL  
26 STRATEGY EMPLOYED OVER THE YEARS IN  
27 DEFENDING CORPORATIONS WITHIN THE  
28 INDUSTRY FROM THE CLAIMS OF HEIRS AND

1963

1 ESTATES OF DECEASED SMOKERS: WE,  
2 WITHIN THE INDUSTRY -- " NOW, THIS IS  
3 PART OF A QUOTE, I HAVEN'T HIGHLIGHTED  
4 THE WHOLE THING. "WE, WITHIN THE  
5 INDUSTRY, ARE IGNORANT OF ANY  
6 RELATIONSHIP BETWEEN SMOKING AND  
7 DISEASE."



8 AND IN THE SECOND PART THAT I HAVE  
9 HIGHLIGHTED.  
10 "WE ARE NOW BEING ALLOWED TO  
11 CONDUCT RESEARCH ON THE IMMEDIATE  
12 EFFECTS OF NICOTINE BECAUSE OF THIS  
13 DISTINCTION. WE CAN WORK WITH  
14 BIOLOGICAL SYSTEMS IMPLANTING --  
15 EXCUSE ME -- WE CAN INJECT NICOTINE IN  
16 RATS AND WE CAN PERFORM THE SURGERY  
17 REQUIRED FOR IMPLANTING CANNULA. BUT  
18 IN DOING SO, WE ARE ENGAGING IN  
19 RESEARCH ON THE PHARMACOLOGICAL ACTION  
20 OF NICOTINE, WHICH BRINGS US TO THE  
21 SECOND CONCERN OF OUR ATTORNEYS, THIS  
22 IS A MORE RECENT CONCERN ARISING FROM  
23 INCREASINGLY FAVORABLE PROSPECTS FOR  
24 THE SUCCESS OF A LEGISLATIVE EFFORT TO  
25 TRANSFER AUTHORITY FOR THE REGULATION  
26 OF TOBACCO MANUFACTURE TO A FEDERAL  
27 AGENCY, F.D.A., KNOWN TO HAVE  
28 INTERESTS AND POWERS ANTITHETICAL TO

1964

1 THE INTERESTS OF THE INDUSTRY. ANY  
2 ACTION ON OUR PART, SUCH AS RESEARCH  
3 ON THE PSYCHOPHARMACOLOGY OF NICOTINE,  
4 WHICH IMPLICITLY OR EXPLICITLY TREATS  
5 NICOTINE AS A DRUG, COULD WELL BE  
6 VIEWED AS A TACIT ACKNOWLEDGMENT THAT  
7 NICOTINE IS A DRUG."  
8 DO YOU HAVE AN OPINION THAT  
9 NICOTINE IS A DRUG?  
10 A. YES, IT IS A DRUG.  
11 Q. THERE'S A COPY OF THIS. IT'S  
12 SIGNED BY MR. DUNN. THERE IS A COPY TO T.S.  
13 OSDENE, T.S.O.  
14 NOW, AS A RESULT OF READING THESE  
15 WORDS HERE, THE TOPIC THAT I AM DISCUSSING WITH YOU  
16 IS, WAY BEFORE APRIL 15, 1994, DID PHILIP MORRIS  
17 KNOW NICOTINE WAS ADDICTIVE, AND DOES THIS, DOES  
18 THIS DOCUMENT THAT I JUST READ TO YOU, IS IT  
19 SIGNIFICANT TO YOU IN ANSWERING THAT QUESTION?  
20 A. YES.  
21 Q. WHY?  
22 A. WELL, DR. DUNN RESTATES, WHAT I  
23 HAVE TALKED ABOUT ALREADY, THAT TO UNDERSTAND  
24 SMOKING, AND TO UNDERSTAND THE BUSINESS OF SELLING  
25 TOBACCO, YOU HAVE TO UNDERSTAND THE PSYCHOACTIVITY  
26 OF NICOTINE, WHICH IS WHAT IT DOES TO BEHAVIOR AND  
27 MOOD.  
28 HE EXPRESSES SOME OF THE

1965

1 FRUSTRATION WITH DOING IT BECAUSE OF THE INDUSTRY'S  
2 CONCERN THAT IF THEY DO ANY RESEARCH, THE INDUSTRY  
3 CAN'T CLAIM IGNORANCE OF HARM.  
4 MR. CARLTON: OBJECTION, YOUR HONOR, TO A  
5 STATEMENT OF INTENT.  
6 THE COURT: AGREED, SUSTAINED.  
7 THE WITNESS: WHAT WAS STATED WAS THAT  
8 ONE OF THE RISKS OF DOING RESEARCH IS THAT WE CAN'T  
9 OR OUR ATTORNEYS CAN'T --  
10 MR. CARLTON: OBJECTION, YOUR HONOR, THAT

11 MISCHARACTERIZES THE DOCUMENT.  
12 THE COURT: SUSTAINED.  
13 Q BY MR. PIUZE: I WILL TELL YOU  
14 WHAT, THE JURY -- THAT WASN'T EXACTLY WHAT I WAS  
15 GOING FOR.  
16 A. OKAY.  
17 Q. THE JURY CAN --  
18 THE COURT: JUST ANSWER HIS QUESTION.  
19 Q BY MR. PIUZE: I AM GOING TO ASK A  
20 BETTER QUESTION. IT'S MY FAULT.  
21 A. SORRY.  
22 Q. ALMOST 12:00. MY EYE'S ON THE  
23 CLOCK, PROBABLY OTHERS ARE, AND I ASKED A CRUMMY  
24 QUESTION.  
25 THE JURY CAN READ WHAT THE WORDS  
26 SAY.  
27 WE ARE TALKING PSYCHOPHARMACOLOGY  
28 AND ALL THIS STUFF IN HERE THAT IS YOUR FIELD, ONE

1966

1 OF YOUR FIELDS. DOES THE USE OF THESE WORDS IN  
2 HERE, IN THIS CONTEXT, TELL YOU THAT IT WAS  
3 UNDERSTOOD HERE THAT NICOTINE IS ADDICTIVE?  
4 MR. CARLTON: OBJECTION, YOUR HONOR.  
5 THE COURT: SUSTAINED.  
6 MR. PIUZE: OKAY, THEN, THAT PROBABLY --  
7 THE COURT: HE CAN TESTIFY AS TO HIS  
8 UNDERSTANDING OF THOSE WORDS. BUT HE CAN'T TELL US  
9 WHAT SOMEBODY ELSE WHO WROTE THE DOCUMENT INTENDED.  
10 MR. PIUZE: THANK YOU.  
11 THE COURT: FAIR ENOUGH.  
12 MR. PIUZE: LIFE LINE.  
13 Q BY MR. PIUZE: WHAT IS YOUR  
14 UNDERSTANDING OF THOSE WORDS?  
15 A. MY UNDERSTANDING IS THAT NICOTINE  
16 IS WHAT MAINTAINS SMOKING. IT'S PSYCHOACTIVE. AND  
17 THAT IF -- AND IF ONE -- WELL, AND THAT DR. DUNN  
18 UNDERSTOOD --  
19 MR. CARLTON: OBJECTION.  
20 THE COURT: SUSTAINED.  
21 THE WITNESS: OR --  
22 THE COURT: SIR, WE DON'T WANT YOU  
23 TESTIFYING AS TO WHAT SOMEBODY ELSE UNDERSTOOD.  
24 THE WITNESS: WELL, THAT NICOTINE IS A  
25 DRUG, NO MATTER WHAT THE CONCERNS OF ATTORNEYS OR  
26 WHATEVER, THAT NICOTINE IS A DRUG AND THAT'S WHAT  
27 HE STATED.  
28 MR. PIUZE: OKAY. THANK YOU.

1967

1 YOUR HONOR, I'D LIKE TO DONATE THE  
2 NEXT 13 SECONDS TO THE JURY.  
3 THE COURT: WELL, ALL RIGHT. THANK YOU  
4 VERY MUCH.  
5 LADIES AND GENTLEMEN OF THE JURY,  
6 IT'S TIME NOW TO TAKE OUR NOON BREAK.  
7 WE WILL BE BACK AT 1:30 THIS  
8 AFTERNOON. DON'T DISCUSS THE CASE WITH ANYONE.  
9 SIR, YOU MAY STEP DOWN.  
10  
11 (AT 12 NOON, THE LUNCH  
12 RECESS WAS TAKEN TO  
13 1:30 P.M. OF THE SAME DAY.)

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1968

1 MASTER INDEX  
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3 DAY DATE PAGE VOLUME  
4 FRIDAY APRIL 6TH, 2001 1864 12A  
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9 W I T N E S S E S  
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11 WITNESS DIRECT CROSS REDIRECT RECROSS  
12 UYDESS, 1866 1887  
13 IAN  
14 BENOWITZ, 1893  
15 NEAL  
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1969

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VOL. 5 DESCRIPTION FOR IDENTIFICATION IN EVIDENCE  
6 421 - ARTICLE 1956  
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